

INDIA WEATHER REVIEW, 1956

Monthly Weather Report

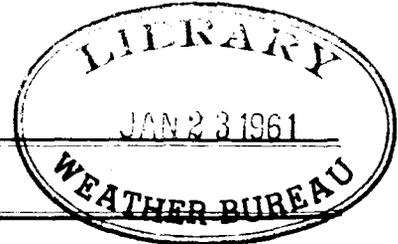
January

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1956*Chief features—*

Good activity of the western disturbances during the first twelve days of the month and their sub-normal activity thereafter were the chief features of the month's weather.

An active western disturbance from the Persian Gulf and neighbourhood moved into Baluchistan on 1st January. It took an eastnortheasterly course and moved away across Tibet by the 4th morning. In association with it, there was an active secondary which lay as a trough of low pressure extending from northeast Arabian Sea to south Rajasthan on the 3rd. The trough extended to southwest Uttar Pradesh on 5th and became unimportant the next day. Under the combined influence of the primary and the secondary, nearly general rain or snow fell in Jammu-Kashmir on the 3rd, in the hills of the Punjab (I) on the 3rd and 4th and in the hills of west Uttar Pradesh on the 5th. According to newspaper reports, the snowfall in Simla hills on the night of 3rd January was heavy and the roads leading to interior Himachal Pradesh were blocked; water taps were also reported to have burst at some places due to the freezing of water.

Another western disturbance moved across the extreme north of the country between the 5th and the 6th, causing local rain or snow in the Punjab hills on the 6th.

A low pressure area formed over the north Arabian Sea on the evening of 6th January. It extended as a trough into south Rajasthan by the 7th morning. The trough moved northeastwards and was accentuated by a western disturbance which approached Baluchistan on 8th and moved away across the Punjab-Kumaon hills by the 10th morning. Rain or snow was fairly widespread in the Punjab hills and local or fairly widespread in Jammu-Kashmir from 8th to 10th. During the same period, local to fairly widespread precipitation also occurred in the hills of west Uttar Pradesh and in the plains of the Punjab (I); scattered to local showers were reported from the plains of Uttar Pradesh and scattered showers from Rajasthan, Madhya Bharat and Vindhya Pradesh. According to newspapers, Srinagar and the rest of Kashmir valley were covered by a deep mantle of snow on 8th and the valley was virtually isolated from the rest of the country due to the breakdown of road communications.

The next western disturbance which affected Baluchistan on 10th, moved away across Jammu-Kashmir on 12th. It caused fairly widespread rain or snow in Jammu-Kashmir and the Punjab-Kumaon hills on the 11th and scattered snowfalls in that area on 12th. Scattered showers were also reported from the plains of north Punjab (I) and of west Uttar Pradesh on 11th.

A western disturbance which could be located over to the south Persian Gulf on the 15th, moved across the extreme north of the country between the 16th and the 17th. It caused local rain or snow in Jammu-Kashmir on 17th.

The last western disturbance of the month approached the northern parts of the country on the 18th, moved across the Punjab hills on the 19th and passed away across the eastern Himalayas by the 21st. Under its influence, local to fairly widespread rain or snow occurred in the Punjab-Kumaon hills on the 19th and 20th and scattered snowfall in Jammu-Kashmir between 18th and 20th. Sub-Himalayan West Bengal had scattered showers on the 19th and Assam scattered to local showers between 19th and 21st.

National Oceanic and Atmospheric Administration

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The details regarding the movement and activity of each western disturbance are given in the following table:—

Statement of Western Disturbances January 1956

S.No.	Period	Course	Region	Nature of precipitation	Period	REMARKS
1	2	3	4	5	6	7
1	1st-4th	Persian Gulf-Baluchistan-Northwest Frontier Province-Punjab(I)-Tibet.	Jammu-Kashmir Hills of the Punjab(I) Plains of the Punjab(I) Hills of west Uttar Pradesh	Fairly widespread rain or snow. Fairly widespread rain or snow Local or fairly widespread rain Fairly widespread rain or snow	3rd 3rd, 4th 3rd, 4th 5th	
1(a)	3rd-6th	Trough extending from northern Arabian Sea to southwest Uttar Pradesh.	Saurashtra-Kutch Rajasthan	Scattered rain Scattered rain	5th 6th	Secondary of 1st disturbance.
2	5th-6th	Northwest Frontier Province-extreme north of the country.	Hills of the Punjab(I)	Local rain or snow	6th	
3	8th-10th	Baluchistan-Punjab-Hills of west Uttar Pradesh.	Jammu-Kashmir Plains of the Punjab(I) Hills of the Punjab(I) Hills of west Uttar Pradesh Plains of Uttar Pradesh Rajasthan Madhya Bharat Vindhya Pradesh	Local to fairly widespread rain or snow Local to fairly widespread rain Fairly widespread rain or snow Local rain or snow Fairly widespread rain or snow Scattered to local showers Scattered showers Scattered to local showers Scattered showers	8th-10th 8th-10th 8th-10th 8th 9th-10th 8th-10th 8th-10th 8th, 9th 9th, 10th	
4	10th-12th	Baluchistan-Jammu and Kashmir.	Jammu-Kashmir Hills of the Punjab(I) Plains of the Punjab(I) Hills of west Uttar Pradesh Plains of west Uttar Pradesh	Fairly widespread rain or snow Scattered snowfalls. Fairly widespread rain or snow Scattered rain or snow Scattered showers Fairly widespread rain or snow Scattered rain or snow Scattered showers	11th 12th 11th 12th 11th 11th 12th 11th	
5	16th-17th	South Persian Gulf-Baluchistan-extreme north of the country.	Jammu-Kashmir	Local rain or snow	17th	
6	18th-21st	Punjab-western Himalayas-eastern Himalayas.	Jammu-Kashmir Hills of the Punjab(I) Plains of north Punjab(I) Hills of west Uttar Pradesh Sub-Himalayan west Bengal Assam	Scattered snow Local to fairly widespread rain or snow Scattered light showers Local to fairly widespread rain or snow Scattered showers Scattered to local showers	18th-20th 19th, 20th 19th 19th, 20th 19th 19th-21st	

Two feeble easterly waves moved rapidly across the extreme south Bay of Bengal between 8th and 11th January. They caused scattered showers in Tamilnad on 8th, 9th and 11th and in Travancore-Cochin on 11th. Another easterly wave moved across the extreme south Peninsula between 12th and 13th and gave fairly widespread rain in south Tamilnad and Travancore-Cochin on 12th and local rain in south Tamilnad on 13th. The associated moist easterlies moved northwards under the influence of a low pressure area over the northeast Arabian Sea, with the result that local thunder-showers occurred in Vindhya Pradesh and scattered thundershowers in Madhya Bharat, west Madhya Pradesh and north Deccan (Desh) on the 13th. According to press reports, a few of the thunderstorms in north Deccan (Desh) were accompanied by hail. One more easterly wave towards the end of the month was responsible for a spell of wet weather in the south Peninsula from 29th to 31st.

Errata to Monthly Weather Report for January 1956

Page No.	Station	Hour	Column	For	Read
<u>Table I</u>					
4	Madhya Bharat	-	2	-0.36	+0.36
<u>Table II</u>					
5	Noncowry	-	22	Blank	0
	Bankura	-	20	-	1
	Cuttack	-	9	Blank	3
6	Patna (Aero-drome)	-	10	0712	0.12
	Dumka	-	16	-0.7	+0.7
	Sabour	-	16	-0.9	+0.9
7	heading	-	17	1733	1730
	"	-	20	Preapitaton	Precipitation
	Sonamarg	-	12	-3.	-3.58
	Dras	-	12	-1.7	-1.73
	Kargil	-	1	Karl	Kargil
	Kargil	-	12	-0.0	-0.02
	Leh	-	12	+0.2	+0.22
	Sheopur Kalan	-	17	4.3	4.4
8	Bhuj(Aerodrome)	-	1	Bhuj (Aerodrome)	Bhuj (Aerodrome)
	Devgad	-	19	+2.5	-2.5
9	Cuddapah	-	1	Coddapah	Cuddapah
	Mangalore	-	26, 27	Blank	0, 0
	Kozhikode	-	23, 24	Blank	0, 0
	Balehonnur	-	15	"	0
10	heading	-	5	Blank	5
	Bangalore (Central Observatory)	-	15	"	1
11	heading	-	-	January	January 1956
<u>Table III</u>					
13	Asansol	0830	12	- - 1	-1
14	heading	-	3	Height of -- above mean sea level in --	Height of barometer cistern above mean sea level in feet.
	Angul	0830	17	1	0
	Titilagarh	-	1	Titilagarh	Titilagarh
15	heading	-	-	January 1956	January 1956
	Gonda	0830	22	Blank	0
16	Dehra Dun	0530	11	3	83
	"	0830	11	Blank	77
17	Hissar	1130	19	Not clear	2
	Chandigarh	-	1	"	Chandigarh
	Ludhiana	-	1	"	Ludhiana
	Ferozepur	-	1	"	Ferozepur
	Amritsar	-	1	"	Amritsar
	Kargil	-	1	"	Kargil
18	Sri Ganganagar	2330	3	590	580
	Barmer	0530	3	368	638
	Kotah	0830	12	+21	12
	Gwalior (P. B.O.)	1130	5	995.1	991.5
19	Hedding	-	13	Mean amoun	Mean amount
	Guna	-	2	0	0530
	"	-	2	00	0830
	Sutna	-	2	23 0	2330
	Raigarh	-	1	Not clear	Raigarh

(Contd.)

Page No.	Station	Hour	Column	For	Read
20	Heading	-	10	Pressure	Pressure
	Ahmedabad	1130	9	42.8	42.3
	"	1730	"	41.3	41.8
	Dohad	0830	12	1	-1
21	Dahanu	0830	10	5.6	15.6
	"	1730	10	Blank	22.3
	Bombay (Colaba)	0830	10	.3	19.3
	"	1130	10	9.0	19.0
25	Heading	-	-	January 1959	January 1956
	Vellore	1130	27	0	2
	Mangalore	0830	6	-1.1	-1.7
	Bellary	0830	15	.7	3.7
27	Dhanbad	0830	15	.0	3.0

Page No.	Station	Hour	Ht. in Km.	Column	For	Read
<u>Table IV</u>						
32	Bangalore	0130	4.5	V	.5	7.5
34	Gadag	1430	5.4	V	14.9	14.0
38	Masulipatnam	1430	2.1	D	0.75	075
	Mangalore	0730	3.0	D	11.4	114
40	Santacruz	0830	4.5	D	360	260
42	Veraval	0730	7.2	n	14	4
<u>Table V</u>						
43	Bangalore	0730	20.0	v	19.0	29.0
	"	1430	10.0	Ht. in Km.	10.0	10.5
44	Nagpur	2030	Not clear	"	12	12.0
	"	"	"	"	14	14.1

Page No.	Station	Standard Pressure Surface mbs.	Column	For	Read
<u>Table VI</u>					
46	Nagpur	800	Max.	238	298
48	Madras	Surface	Min.	299	295
49	Heading	-	-	Table IV	Table VI

During the last week of the month, moist air from the Bay of Bengal penetrated into the central parts of the country and Uttar Pradesh across south coastal Andhradesa, Rayalaseema and south Deccan (Desh). Vindhya Pradesh experienced fairly widespread rain on 27th and 28th; Madhya Bharat and Madhya Pradesh scattered showers from 26th to 28th and Uttar Pradesh scattered to local showers from 26th to 28th.

There was no marked cold spell over the country during the month, although there were two brief cold spells of moderate intensity, one over Rajasthan and north Madhya Bharat on the 22nd and the other over Saurashtra-Kutch, north Gujarat and the adjoining areas of Rajasthan on the 29th and 30th.

The total rainfall for the month was in large excess in Assam and Madhya Bharat, in moderate excess in Vindhya Pradesh and in slight excess in west Rajasthan. It was normal in the Bay Islands, Bihar, Uttar Pradesh and east Rajasthan, in slight defect in the Punjab(I), Jammu-Kashmir and Tamilnad and in large defect elsewhere. Averaged over the plains of India, the rainfall was in defect by 24%.

The mean maximum temperature was above normal in Orissa and Chota Nagpur, below normal in Jammu-Kashmir and normal over the rest of the country.

The mean minimum temperature was above normal in east Uttar Pradesh, west Rajasthan Madhya Bharat, east Madhya Pradesh and Gujarat, below normal in Jammu-Kashmir and normal elsewhere.

The mean relative humidity in the morning was in excess in west Uttar Pradesh, the Punjab(I), east Rajasthan, Madhya Bharat, Vindhya Pradesh, Gujarat, Saurashtra and Kutch and normal elsewhere except in the Bay Islands where it was in defect.

The mean cloud amount in the morning was in excess in the Bay Islands, Assam, Madhya Bharat and Travancore-Cochin, in defect in West Bengal, Orissa, Chota Nagpur, Bihar, west Rajasthan, Madhya Pradesh, Saurashtra and Kutch, the Konkan, Hyderabad and Rayalaseema and normal over the rest of the country.

Table I contains the divisional and sub-divisional means of rainfall, temperature, humidity and cloud amount for the 13 chief political divisions and the 28 sub-divisions. The stations whose observations are used for preparing these means are given in the subsequent tables.

The highest maximum temperature given for any station in the accompanying tables is that recorded within the 24 hours ending at 0830 hrs. I.S.T. of the date noted in the succeeding column; similarly the heaviest fall in 24 hours for any station denotes the amount recorded during the 24 hours ending at 0830 hrs. I.S.T. of the date given in the succeeding column.

POONA 5 ;

Dated the 12th December 1956. }

K. DAS,

for Director General of Observatories.

TABLE I—DIVISIONAL AND SUB-DIVISIONAL MEANS—JANUARY 1956.

Division	Rainfall (inches).	Percentage of normal.	Mean maximum temperature of	Mean minimum temperature of	Relative humidity. %		Cloud.		Division	Rainfall (inches).	Percentage of normal.	Mean maximum temperature of.	Mean minimum temperature of.	Relative humidity. %		Cloud.	
					0830 hrs. I.S.T.	1730 hrs. I.S.T.	0830 hrs. I.S.T.	1730 hrs. I.S.T.						0830 hrs. I.S.T.	1730 hrs. I.S.T.	0830 hrs. I.S.T.	1730 hrs. I.S.T.
I	2	3	4	5	6	7	8	9	I	2	3	4	5	6	7	8	9
Division									Division—contd.								
1. Assam (including Manipur & Tripura).	1.23 +0.47	162 ..	72.3 -0.5	52.1 +1.4	87 -2	73 ..	4.1 +0.7	2.6 ..	8. Madhya Bharat & Vindhya Pradesh.	0.83 +0.32	163 ..	76.7 0	47.1 +2.0	70 +6	41 ..	2.3 +0.4	2.4 ..
2. West Bengal	0.22 -0.24	48 ..	78.7 +1.1	55.4 +1.8	70 -5	52 ..	0.8 -0.8	0.6 ..	9. Madhya Pradesh	0.03 -0.41	68 ..	83.0 +1.1	55.7 +2.0	64 +2	37 ..	1.1 -0.6	1.1 ..
3. Orissa	0 -0.37	0 ..	83.6 +2.1	59.7 +1.7	72 -2	54 ..	1.0 -0.8	0.8 ..	10. Bombay (including Saurashtra & Kutch).	0.02 -0.09	18 ..	84.3 -0.1	58.9 +0.9	65 +6	42 ..	1.1 -0.3	1.1 ..
4. Bihar	0.50 -0.15	77 ..	76.7 +1.4	50.1 +0.5	69 -3	50 ..	0.8 -0.9	0.9 ..	11. Hyderabad	0.02 -0.25	7 ..	84.9 -0.2	61.1 +0.5	65 +4	33 ..	1.0 -0.9	1.1 ..
5. Uttar Pradesh	0.85 +0.03	104 ..	71.9 -0.6	47.7 +1.8	80 +6	57 ..	2.1 -0.1	2.2 ..	12. Madras (including Travancore-Cochin).	0.58 -0.31	65 ..	84.8 -0.7	67.4 -0.1	76 -1	59 ..	2.9 -0.2	2.1 ..
6. Punjab (I) (including PEPSU & Delhi).	0.98 -0.18	84 ..	70.7 +1.5	44.2 +0.8	84 +9	51 ..	2.3 -0.4	2.2 ..	13. Mysore	0.03 -0.13	19 ..	82.2 -1.3	60.1 +0.3	71 +1	35 ..	2.2 -0.3	2.1 ..
7. Rajasthan	0.27 0	100 ..	73.9 -0.4	47.7 +1.4	67 +9	35 ..	1.7 -0.4	1.8 ..	Mean of India	0.39 -0.12	76 ..	79.4 +0.2	54.9 +1.1	71 +3	46 ..	1.7 -0.4	1.1 ..
Sub-Division									Sub-Division—contd.								
1. Bay Islands	1.82 +0.03	102 ..	85.3 +1.1	70.0 -1.6	65 -6	75 ..	4.1 +0.7	4.9 ..	15. Madhya Pradesh, East.	0 -0.42	0 ..	82.3 +1.1	55.5 +2.2	68 -1	42 ..	1.1 -0.6	1.1 ..
2. Assam (including Manipur & Tripura).	1.23 +0.47	162 ..	72.3 -0.5	52.1 +1.4	87 -2	73 ..	4.1 +0.7	2.6 ..	16. Madhya Pradesh, West.	0.06 -0.39	13 ..	83.4 +1.1	55.7 +1.9	61 +4	34 ..	1.1 -0.6	1.1 ..
3. West Bengal	0.22 -0.24	48 ..	78.7 +1.1	55.4 +1.8	70 -5	52 ..	0.8 -0.8	0.6 ..	17. Gujarat	0 -0.07	0 ..	85.4 0	55.2 +2.1	65 +7	35 ..	1.2 0	0 ..
4. Orissa	0 -0.37	0 ..	83.6 +2.1	59.7 +1.7	72 -2	54 ..	1.0 -0.8	0.8 ..	18. Saurashtra and Kutch.	0.01 -0.05	17 ..	80.5 -0.7	53.5 +0.1	61 +8	41 ..	0.9 -0.4	0 ..
5. Chota Nagpur	0.35 -0.40	47 ..	78.8 +2.4	51.2 +0.7	67 -3	47 ..	0.8 -1.1	1.1 ..	19. Konkan	0 -0.11	0 ..	84.0 -0.1	66.3 +0.6	73 +4	63 ..	1.0 -0.7	0 ..
6. Bihar	0.58 -0.01	98 ..	75.0 +0.6	49.2 +0.3	71 -4	52 ..	0.9 -0.7	0.8 ..	20. Deccan (Desh)	0.05 -0.11	31 ..	85.8 0	57.8 +0.9	62 +5	31 ..	1.3 -0.1	0 ..
7. Uttar Pradesh, East.	0.73 +0.04	106 ..	72.8 -0.8	48.9 +2.5	82 +4	60 ..	1.9 -0.2	2.2 ..	21. Hyderabad, North	0.01 -0.28	3 ..	84.5 +0.2	59.5 +0.1	59 +5	29 ..	0.9 -1.0	0 ..
8. Uttar Pradesh, West.	0.97 +0.03	103 ..	71.1 -0.3	46.6 +1.2	78 +7	53 ..	2.2 0	2.1 ..	22. Hyderabad, South	0.04 -0.23	15 ..	85.1 -0.5	61.9 +0.6	69 +3	34 ..	1.1 -0.8	0 ..
9. Punjab (I) (including PEPSU and Delhi).	0.98 -0.18	84 ..	70.7 +1.5	44.2 +0.8	84 +9	51 ..	2.3 -0.4	2.2 ..	23. Coastal Andhradesa	0.20 -0.21	49 ..	84.1 0	64.8 -0.1	79 +4	63 ..	2.9 -0.7	0 ..
10. Jammu & Kashmir.	3.02 -0.76	80 ..	41.7 -3.5	25.1 -2.6	68 -3	61 ..	5.6 +0.6	5.0 ..	24. Rayalaseema	0 -0.26	0 ..	87.3 -0.9	63.8 +0.1	71 -1	42 ..	1.4 -0.5	0 ..
11. Rajasthan West	0.27 +0.03	113 ..	73.0 0	46.8 +2.4	65 +5	31 ..	1.5 -0.9	1.7 ..	25. Tamilnad	1.12 -0.37	75 ..	83.7 -1.2	68.0 -0.1	77 -4	58 ..	3.3 0	0 ..
12. Rajasthan, East (including Ajmer).	0.27 -0.03	90 ..	74.7 -0.7	48.4 +0.6	69 +12	38 ..	1.8 0	1.8 ..	26. Malabar and South Kanara.	0 -0.23	0 ..	87.9 -0.6	70.5 -0.3	74 +1	65 ..	1.9 -0.1	0 ..
13. Madhya Bharat	0.70 -0.36	206 ..	76.7 -0.6	50.1 +2.2	66 +6	38 ..	2.5 +0.7	2.3 ..	27. Mysore	0.03 -0.13	19 ..	82.2 -1.3	60.1 +0.3	71 +1	35 ..	2.2 -0.3	0 ..
14. Vindhya Pradesh	1.06 +0.25	131 ..	76.6 +1.0	48.6 +1.6	77 +6	45 ..	2.1 0	2.0 ..	28. Travancore-Cochin	0.41 -0.43	49 ..	86.9 -0.7	72.7 -0.1	70 -3	62 ..	3.5 +1.2	0 ..

Table with columns for Division and station, Air temperature in °F (Mean maximum, Departure from normal, Highest, Date, Mean minimum, Departure from normal, Lowest, Date), Rainfall in inches (Total fall during 0800-1730 hours, Total fall in 24 hour, Departure from normal, Heaviest fall in 24 hours, Date), No. of rainy days (0.10" or more) (Total in the month, Departure from normal), Wind Speed, miles per hour (Mean between 0830-1730 hours, Mean 24 hours, Departure from normal), and Weather phenomena—No. of days with (Precipitation (0.1" or more), Snow or sleet, Hail, Thunder heard, Fog, Dust-storm, Ground frost, Gale, Squall).

TABLE II—SUMMARY OF OBSERVATIONS OF TEMPERATURE, RAINFALL AND WEATHER—JANUARY.

Division and station	Air temperature in °F								Rainfall in inches.					No. of rainy days (0·10" or more)		Wind Speed, miles per hour			Weather phenomena.—No. of days with														
	Mean maximum	Departure from normal	Highest	Date	Mean minimum	Departure from normal	Lowest	Date	Total fall during 0830-1730 hours	Total fall in 24 hours	Departure from normal	Heaviest fall in 24 hours	Date	Total in the month	Departure from normal	Mean between 0830-1730 hours	Mean 24 hours	Departure from normal	Precipitation (0·1" or more)	Snow or sleet	Hail	Thunder heard	Fog	Dust-storm	Ground frost	Gale	Squall	Line squall					
																													2	3	4	5	6
HYDROMETEOROLOGICAL—OBSERVATORIES—contd.																																	
Damodar Catchment—contd.																																	
Hazaribagh	73·1	...	81	20	49·3	...	42	3,23,31	0	0·55	...	0·40	28	2	...	6·9	3·9	...	3	0	0	1	0	0	0	0	0	0	0	0	0	0	
Barhi	74·6	...	83	20	50·3	...	40	23	0·03	0·89	...	0·80	28	1	...	4·6	2·5	...	2	0	0	1	0	0	0	0	0	0	0	0	0	0	
Ramgarh	80·5	...	87	10	46·2	...	39	23	0	0·89	...	0·72	28	2	...	3·3	1·6	...	2	0	0	1	0	0	0	0	0	0	0	0	0	0	
Dhanbad	78·1	...	85	20	53·9	...	48	17,24	0	0·31	...	0·19	28	2	...	4·3	3·8	...	2	0	0	1	0	0	0	0	0	0	0	0	0	0	
Panchet Hills	79·6	...	86	7	52·0	...	-47	6 days	0	0·07	...	0·04	28	0	...	5·2	3·3	...	2	0	0	0	0	0	0	0	0	0	0	0	0	0	
Asansol	...	...	...	...	...	...	...	...	...	0·13	...	0·10	28	1	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...
Dhanwar	...	...	...	...	...	...	...	...	...	0·72	...	0·55	27	2	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...
Dumri	...	...	...	...	...	...	...	...	...	0·46	...	0·42	28	1	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...
Bishnagarh	...	...	...	...	...	...	...	...	...	0·67	...	0·60	28	1	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...
Palgauj (Giridih)	...	...	...	...	...	...	...	...	...	0·87	...	0·52	28	2	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...
Chandwa	...	...	...	...	...	...	...	...	...	0·43	...	0·27	28	2	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...
Pupunki(Chas Road)	...	...	...	...	...	...	...	...	...	0·25	...	0·22	28	1	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...
Shanadi Catchment																																	
Baramul	85·1	...	89	8,26,27	52·0	...	46	4	0	0	...	0	...	...	...	...	...	...	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hirakud	85·2	...	89	27	57·4	...	50	3	0	0	...	0	...	...	1·8	1·7	...	...	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Barkachhar*
Sonepur	84·5	...	89	27,28	57·4	...	50	3	...	0	...	0	...	...	...	1·3	...	...	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ginabahal	83·6	...	88	8	49·7	...	43	2,3,17	...	0·05	...	0·05	28	0	...	...	...	...	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Arhadi Catchment																																	
Punasa	85·5	...	90	24	52·7	...	44	2	0	0·08	...	0·08	13	0	...	3·8	2·9	...	1	0	0	1	0	0	0	0	0	0	0	0	0	0	
Bagra Tawa	82·5	...	90	26	52·2	...	43	2	0	0·04	...	0·04	13	0	...	3·8	2·5	...	1	0	0	0	1	0	0	0	0	0	0	0	0	0	
Thikri	86·5	...	91	4days	55·5	...	47	1	0	0	...	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Andul Catchment																																	
Nandurbar	87·2	...	91	17,18,19	62·4	...	56	2	...	0	...	0	...	...	...	...	...	...	0	...	...	...	...	...	...	...	...	...	...	...	...	...
Barmati Catchment																																	
Jhadol	76·5	...	83	17	43·2	...	32	22	...	0	...	0	...	...	...	...	...	...	0	...	...	...	...	...	...	...	...	...	...	...	...	...
Dharoi	83·7	...	89	18	54·7	...	47	31	0	0	...	0	...	...	...	...	...	...	0	...	...	...	...	...	...	...	...	...	...	...	...	...

* Temporarily closed.

TABLE III—SUMMARY OF OBSERVATIONS AT FIXED HOURS—JANUARY 1956.

Table with columns for Division and Station, Hour of observation, Height of barometer, Mean pressure, Mean temperature, Cloud amount, Wind Speed, and No. of observations. Rows include stations such as Konkan, Bombay, Alibag, Harnal, Rajnagiri, Devgad, Venguria, Karwar, Honavar, Dectna (Desh) Jalgaon, Malegaon, Deolali, Ahmednagar, Poona, Poona (Lohagaon Aerodrome), Baramati, Jeur, Sholapur, Miraj, Kolhapur, Bijapur, and Belgaum.

MONTHLY MEANS OF UPPER WINDS, JANUARY 1956

During the month, observations of velocity and direction of upper winds were made at 51 stations in India. Out of these, at 43 stations all the observations were taken by means of pilot balloons and at 8 stations some observations were made by means of pilot balloons while the other observations by the radiowind method. Particulars of the stations, their co-ordinates and the approximate times of the regular pilot balloon and rawin ascents at each station are given in the table below. All radiowind ascents have been indicated by means of an asterisk (*) against the scheduled hours.

Data from ascents made at the scheduled time or within two hours on either side of the scheduled times of regular observations have been used for averaging.

Data up to 9.0 km. a. m. s. l. are given under Table IV and data above 9.0 km. a. m. s. l. under Table V.

In Tables IV and V :

n—represents the number of observations,

V—represents the mean wind speed in knots irrespective of direction,

v—represents the resultant mean velocity in knots,

D—represents the direction of the resultant mean wind in degrees East of North.

Mean and resultant winds are given in this publication for the following heights this:—

Surface, 0.15 km. a. g., 0.3, 0.6, 0.9, 1.5, 2.1, 3.0, 4.5, 5.4, 6.0, 7.2, 9.0, 10.5, 12.0, 14.1, 16.2, 18.0, 20.0, 23.0, 26.0, 30.0 and 35.0 km. a. m. s. l. Of these the levels 1.5, 3.0, 5.4, 7.2, 9.0, 12.0, 14.1 and 16.2 km. a. m. s. l. are considered as the best approximations to the standard pressure levels 850, 700, 500, 400, 300, 200, 150, and 100 mb. respectively.

Monthly means of previous years have appeared in the following publications:—

- (1) Up to the end of 1919, in Vol. XXIII (Part III) of the MEMOIRS of this Department.
- (2) 1920 in the MONTHLY WEATHER REVIEWS of that year.
- (3) 1921-27 in the INDIA WEATHER REVIEWS of those years.
- (4) 1928-35 in the UPPER AIR DATA (Part 13) of the respective years.
- (5) 1936-46 in the UPPER AIR DATA (Part A) of those years.
- (6) 1947-50 in the respective MONTHLY WEATHER REPORT of every month.

The publication of monthly means and resultants of upper winds in the Monthly Weather Reports, which was held in abeyance during 1951-55, is being resumed with this number.

Particulars of Pilot Balloon and Rawin Stations in India

Station	Lat. N.	Long. E.	Height of Anemometer head a. m. s. l. in metres.	Date of opening	Approximate times of flight (IST)		
Agartala	23°53'	91°15'	17	28th November 1951	0130	0730	1430
Ahmedabad	23°04'	72°38'	61	19th May 1928	0130	0730	1430
Amausi	26°45'	80°53'	126	20th November 1950	0130	0730	1430
Ambala	30°23'	76°46'	282	1st April 1941	0130	0730	1430
Anantapur	14°41'	77°37'	364	12th February 1946		0730	1430
Asansol	23°41'	86°59'	126	29th May 1942	0130	0730	1430
Baghdogra	26°38'	88°19'	138	7th June 1953		0730	1430
Bairagarh	23°17'	77°21'	524	26th February 1943	0130	0730	1430
Bamrauli	25°27'	81°44'	103	28th February 1930	0130	0830*	1430 2030*
Bangalore	12°58'	77°35'	936	19th May 1915	0130	0730	1430
Barcilly	28°22'	79°24'	180	12th January 1943		0730	1430
Begumpet	17°27'	78°28'	542	1st September 1929	0130	0730	1430
Bhagalpur	25°14'	86°57'	60	19th May 1950		0730	1430
Bhubaneshwar	20°15'	85°50'	45	5th December 1942	0130	0730	1430
Bhuj	23°15'	69°48'	111	14th September 1937	0130	0730	1430
Bikaner	28°00'	73°18'	228	18th October 1946	0130	0730	1430
Chikalhana	19°51'	75°24'	583	7th October 1951	0130	0730	1430
Cochin†	09°58'	76°14'	3	16th March 1942	0130	0730	1430
Dum Dum	22°39'	88°27'	11	14th May 1921	0130	0830*	1430 2030*
Gadag	15°25'	75°38'	650	3rd May 1943	0130	0730	1430
Gauhati	26°05'	91°43'	55	12th March 1955	0130	0830*	1430 2030*
Gaya	24°45'	84°57'	113	19th March 1937	0130	0730	1430
Gopalpur	19°16'	84°53'	24	15th February 1946	0130	0730	1430
Gorakhpur	26°45'	83°22'	83	5th January 1943		0730	1430
Gwalior	26°14'	78°15'	211	7th May 1938	0130	0730	1430
Imphal	24°51'	93°58'	798	8th March 1952		0730	1430
Jabalpur	23°10'	79°57'	402	30th July 1928	0130	0730	1430
Jagdalpur	19°05'	82°02'	561	25th March 1948	0130	0730	1430
Jaipur	26°49'	75°48'	387	6th June 1953		0730	1430
Jamshedpur	22°49'	86°11'	144	23rd July 1942		0730	1430
Jharsuguda	21°55'	84°05'	234	1st May 1944	0130	0730	1430
Jodhpur	26°18'	73°01'	228	15th October 1934	0130	0730	1430
Madras	13°00'	80°11'	29	8th April 1926	0130	0830*	1430 2030*
Mangalore	12°52'	74°51'	40	4th June 1928	0130	0730	1430
Masulipatnam	16°11'	81°08'	9	8th April 1942	0130	0730	1430
Minicoy	08°18'	73°00'	14	14th April 1941	0130	0730	1430
Mohanbari	27°29'	95°01'	110	1st June 1948	0130	0730	1430
Munsoorie	30°27'	78°05'	2050	3rd November 1955		0730	1430
Nagpur	21°09'	79°07'	316	23rd April 1943	0130	0830*	1430 2030*
New Delhi	28°35'	77°12'	227	20th October 1936	0130	0830*	1430 2030*
Poona	18°32'	73°51'	560	5th January 1925	0130	0730	1430 2030*
Port Blair	11°40'	92°43'	92	29th October 1945	0130	0730	1430
Raipur	21°14'	81°39'	308	15th July 1944	0130	0730	1430
Santacruz	19°05'	72°53'	12	14th May 1933	0130	0830*	1430 2030*
Tezpur	26°37'	92°47'	78	12th August 1932	0130	0730	1430
Tiruchirappalli	10°46'	78°43'	95	22nd June 1936	0130	0730	1430
Trivandrum	08°29'	76°57'	72	8th December 1928	0130	0730	1430
Udaipur	24°35'	73°42'	587	24th June 1947	0130	0730	1430
Vengurla	15°52'	73°38'	8	22nd November 1941	0130	0730	1430
Veraval	20°54'	70°22'	16	13th October 1941	0130	0730	1430
Visakhapatnam	17°43'	83°14'	9	24th September 1928	0130	0730	1430

* Radiowind ascents.

† Naval Meteorological Office.

TABLE IV— MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds upto 9.0 Km. above mean sea level

January 1956

Station.	AGARTALA												AHMEDABAD															
	0130				0730				1430				0130				0730				1430							
Time in I. S. T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	1.7	0.3	042	31	2.3	0.5	158	31	3.8	3.2	283	31	4.7	3.2	360	31	3.6	2.8	028	31	4.6	1.7	0				
0.15 a. g. . .	30	6.0	2.3	340	30	5.2	1.1	072	31	5.2	4.3	286	31	15.8	12.3	013	31	17.9	15.5	053	31	5.9	2.2	3				
0.3 a. m. s. l. . .	30	6.3	2.7	304	30	5.8	2.2	320	31	5.6	4.7	286	31	15.0	11.3	015	31	18.0	14.8	063	31	5.8	1.9	3				
0.6 „ . . .	30	6.9	4.5	294	29	5.2	3.1	310	31	5.9	5.0	270	31	10.5	6.4	017	31	13.4	8.3	063	31	5.5	1.3	0				
0.9 „ . . .	29	8.6	6.2	285	29	7.6	5.5	293	30	6.5	5.3	272	31	8.4	2.4	034	31	9.5	3.1	035	31	5.6	0.9	2				
1.5 „ . . .	27	11.9	11.4	290	29	13.7	12.3	282	30	11.4	10.1	284	31	11.8	7.3	222	31	10.1	6.2	253	31	10.0	7.3	2				
2.1 „ . . .	22	18.8	17.3	289	26	21.2	11.1	289	29	21.3	19.8	287	30	14.0	11.4	228	31	16.3	13.6	236	31	15.8	13.8	2				
3.0 „ . . .	13	25.0	23.6	283	23	25.4	24.5	286	29	30.5	28.1	287	20	16.6	13.6	243	31	18.6	15.8	238	31	20.0	17.8	2				
4.5 „ . . .					7	37.1	35.1	277	20	41.0	39.4	279					22	31.8	28.9	259	30	35.0	33.0	2				
5.4 „ . . .					2	40.0	39.9	299	11	47.7	43.4	278					12	32.5	29.7	269	30	45.7	43.2	2				
6.0 „ . . .									9	55.0	49.0	283					9	36.8	34.5	282	25	48.2	46.1	2				
7.2 „ . . .																	2	32.5	32.3	305	16	53.5	51.6	2				
9.0 „ . . .																					8	65.9	62.1	2				

Station.	AMAUSI												AMBALA															
	0130				0730				1430				0130				0730				1430							
Time in I. S. T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface. . .	31	3.5	2.1	309	31	4.2	2.9	297	31	7.4	6.1	294	31	2.6	2.1	323	31	2.2	1.6	320	31	4.2	2.7	2				
0.15 a. g. . .	30	11.3	8.6	320	30	11.5	7.0	302	31	7.5	5.9	285	31	13.2	9.9	341	31	10.8	8.6	330	31	8.9	6.3	2				
0.3 a. m. s. l. . .	30	11.5	9.5	323	30	11.7	7.6	311	31	7.4	5.9	284	31	5.2	3.7	339	31	4.7	3.4	320	31	5.8	4.0	2				
0.6 „ . . .	30	11.5	9.6	317	30	10.5	8.2	300	31	9.1	7.2	288	31	12.5	9.2	339	31	11.3	7.8	327	31	9.0	5.8	3				
0.9 „ . . .	30	10.9	9.3	298	29	11.1	9.4	291	31	10.8	8.8	288	31	10.9	6.8	330	31	11.3	6.7	305	31	9.7	5.4	3				
1.5 „ . . .	29	14.6	12.4	286	29	14.6	8.8	288	30	14.9	13.7	286	29	10.1	4.4	315	30	10.2	4.0	324	31	9.3	3.6	3				
2.1 „ . . .	29	17.3	15.4	278	28	18.0	15.7	283	29	18.5	17.3	282	26	9.5	7.2	311	30	10.6	4.3	290	29	9.5	3.0	3				
3.0 „ . . .	17	22.8	21.4	274	24	23.2	13.2	277	28	25.4	24.6	280	26	10.0	6.5	288	27	11.9	6.6	264	27	10.7	4.7	2				
4.5 „ . . .					6	28.0	26.3	271	26	36.4	35.4	275	5	15.2	12.2	262	19	17.4	14.2	261	24	19.7	16.1	2				
5.4 „ . . .									20	44.1	43.1	273	5	20.6	15.7	258	15	23.5	17.6	259	21	27.3	24.0	2				
6.0 „ . . .									9	53.7	53.0	270	5	24.8	19.0	269	11	26.9	25.0	259	20	32.9	30.3	2				
7.2 „ . . .									2	89.5	88.9	276									19	47.8	43.4	2				
9.0 „ . . .																					12	79.7	76.0	3				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds upto 9.0 Km. above mean sea level

January 1956

n.	ANANTAPUR								ASANSOL												BAGHDOGRA											
	0730				1430				0130				0730				1430				0730											
in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D				
1 Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
ce	31	3.5	2.3	130	31	6.6	6.1	086	31	2.2	1.8	315	31	3.0	2.6	300	31	3.7	3.2	318	31	1.6	1.5	042								
a. g.	31	8.0	6.4	122	31	9.5	9.2	085	31	9.6	6.4	348	31	9.3	6.4	323	31	7.3	6.3	324	28	6.6	6.2	066								
m. s. l.									31	10.2	7.1	346	31	9.6	6.5	327	31	7.2	6.1	323	28	6.9	6.3	074								
„	31	9.9	8.4	125	31	9.5	9.1	088	31	11.6	7.9	324	31	11.4	8.4	318	31	7.5	6.1	313	28	7.2	6.1	079								
„	30	13.9	12.6	120	31	8.7	8.3	096	31	12.5	9.2	297	31	12.5	9.9	293	31	8.3	7.2	308	28	5.8	4.2	093								
„	30	11.5	9.4	089	31	8.7	7.9	097	31	16.1	14.6	284	31	18.5	16.6	292	31	16.2	15.2	299	27	5.8	2.4	073								
„	30	10.5	7.5	062	31	8.5	6.2	106	27	21.3	19.9	286	30	23.8	22.3	297	29	23.4	22.5	298	24	8.0	5.1	278								
„	30	7.8	1.5	122	29	7.3	1.8	192	11	21.4	19.8	296	22	27.0	25.4	297	29	28.7	27.5	291	18	18.3	13.4	295								
„	29	8.3	2.4	215	28	7.5	2.7	246					6	33.5	31.1	280	24	40.6	39.6	280	7	33.0	31.8	284								
„	28	9.5	3.5	263	28	10.6	3.5	271					2	33.5	33.4	273	16	54.1	53.0	279	2	34.5	32.5	285								
„	28	12.0	4.6	264	27	12.3	4.5	270									9	57.7	56.7	278	1	24.0	24.0	310								
„	24	17.4	7.7	261	19	18.8	9.6	257									2	57.0	56.5	093												
„	15	19.1	12.4	241	10	15.7	6.7	275																								

n.	BAGHDOGRA				BAIRAGARH								BAMRAULI															
	1430				0130				0730				1430				0130				0830 *							
in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
e.	31	2.1	0.9	149	31	4.3	2.5	065	31	2.3	1.5	091	31	5.2	2.8	248	31	2.3	0.7	282	27	3.9	0.9	305				
g.	31	4.5	2.1	177	30	14.5	7.1	080	30	13.2	7.8	109	31	7.0	3.2	243	30	10.9	5.7	318	27	6.2	1.8	305				
m. s. l.	31	4.5	2.6	180													30	11.2	6.0	319	27	6.9	2.4	305				
„	31	4.9	3.0	181	30	14.8	8.0	076	30	11.3	7.4	102	31	7.3	3.5	244	30	10.9	6.1	301	27	9.0	4.8	295				
„	30	4.6	2.8	203	30	11.7	2.8	119	30	13.1	4.1	188	31	7.1	3.9	235	30	12.3	7.7	273	30	10.6	6.9	283				
„	29	5.4	3.0	250	30	11.1	8.2	234	30	13.0	8.0	241	31	10.2	8.2	245	25	15.8	12.7	263	27	14.6	11.7	285				
„	22	9.2	6.8	288	30	16.1	13.4	247	30	16.1	13.7	249	31	15.6	13.4	249	16	19.7	18.2	260	29	16.3	13.8	275				
„	14	21.4	20.5	275	28	20.7	18.3	258	28	19.3	16.8	260	30	20.1	18.3	259	1	18.0	18.0	260	27	22.5	21.3	280				
„	4	48.0	47.7	282	2	28.5	28.1	258	16	30.9	28.4	271	25	34.1	31.7	269					27	37.2	35.6	265				
„	1	62.0	62.0	275					4	34.0	30.9	277	25	43.4	40.5	269					27	46.1	44.0	265				
„									2	30.5	28.0	294	24	46.5	44.0	271					26	54.0	52.1	265				
„													11	56.6	54.2	275					20	56.4	53.5	265				
„																					12	77.3	69.6	255				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mca sea level

January 1956

Station.	BAMRAULI								BANGALORE												BAREILLY		
	1430				2030 *				0130				0730				1430				0730		
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface	31	5.1	3.5	305	31	3.8	1.1	320	31	7.4	7.0	104	31	6.3	6.0	101	31	7.7	6.0	088	31	3.6	1.6
0.15 a. g.	30	7.7	5.7	300	31	7.2	3.3	310	30	16.8	16.3	102	31	14.9	14.2	105	31	9.1	7.6	092	30	14.2	9.9
0.3 a. m. s. l.	30	7.7	6.0	295	31	8.2	4.3	305													30	12.9	8.6
0.6 "	30	8.5	6.7	292	31	11.0	7.0	295													30	14.7	9.6
0.9 "	30	11.1	9.6	294	31	13.6	8.4	288													30	13.9	9.1
1.5 "	30	16.7	15.2	292	31	14.7	13.5	280	26	14.2	10.6	098	29	13.0	9.6	092	31	8.6	7.3	095	30	13.5	10.0
2.1 "	29	20.0	19.0	286	31	19.5	17.7	282	24	8.5	4.3	057	29	9.4	6.3	069	30	7.5	5.4	103	29	15.5	12.7
3.0 "	25	26.6	26.0	281	31	24.4	23.0	270	20	7.7	4.4	096	27	7.7	4.3	120	29	7.3	3.5	134	27	17.9	15.5
4.5 "	21	38.2	36.9	278	31	36.1	34.3	270	11	5	3.7	153	24	7.8	3.6	092	24	8.1	2.3	108	16	28.2	26.9
5.4 "	13	44.9	42.6	271	30	46.5	44.7	270	8	8.7	1.4	149	22	9.7	5.2	086	23	8.6	2.3	077	9	40.5	39.7
6.0 "	10	49.6	46.6	270	30	54.0	52.1	270	5	10.0	3.0	188	22	10.4	4.5	093	23	10.3	2.0	119	2	35.5	34.7
7.2 "	3	74.3	73.1	281	22	57.5	56.5	266	1	13.0	13.0	350	18	13.1	1.7	184	20	14.1	1.9	227			
9.0 "					14	87.1	80.1	255					12	14.3	5.1	190	16	18.2	8.1	206			

Station.	BAREILLY				BEGUMPET												BHAGALPUR						
	1430				0130				0730				1430				0730			1430			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface	31	4.1	2.9	295	31	3.1	2.7	116	31	1.6	1.5	123	31	6.1	4.9	120	31	1.8	1.4	243	31	5.6	5.4
0.15 a. g.	31	8.2	5.4	291	31	12.3	11.4	132	31	9.8	9.5	129	31	7.5	5.8	112	30	8.7	7.0	267	30	10.3	9.9
0.3 a. m. s. l.	31	8.2	5.5	292													30	9.4	7.5	284	30	9.8	9.5
0.6 "	31	9.4	6.3	292	31	7.0	6.3	124	31	5.9	5.7	126	31	7.0	5.6	114	30	10.4	8.8	300	30	11.0	10.6
0.9 "	31	11.3	9.2	297	31	14.1	13.1	129	31	11.7	10.2	127	31	7.4	5.4	109	29	12.1	10.7	295	30	13.4	12.7
1.5 "	31	12.0	9.6	301	31	10.3	5.0	118	30	9.8	5.3	096	31	7.0	4.5	115	29	19.9	19.4	293	26	17.9	17.3
2.1 "	29	15.3	13.2	299	31	10.3	2.0	021	30	10.0	3.4	048	31	7.5	1.5	152	25	25.1	23.7	293	22	24.2	23.3
3.0 "	28	20.7	18.8	283	30	9.3	3.0	278	30	9.1	2.4	274	31	9.5	5.7	247	19	31.4	30.9	292	19	32.4	31.7
4.5 "	21	30.6	28.9	283	1	24.0	24.0	280	29	13.8	10.9	266	28	13.6	10.6	262	9	40.3	37.3	288	11	40.1	39.1
5.4 "	17	40.5	38.7	281					28	16.6	13.5	262	26	18.6	14.9	260	1	45.0	45.0	290	3	51.3	49.4
6.0 "	10	46.0	44.0	278					28	17.9	14.1	263	26	20.3	17.7	260					3	60.0	58.6
7.2 "	2	51.5	50.9	281					12	18.5	13.0	271	26	25.8	20.6	259							
9.0 "									4	20.5	17.3	252	24	34.3	27.9	260							

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

January 1956

Station	BHUBANESHWAR												BHUJ															
	0130				0730				1430				0130				0730				1430							
in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
at sea	30	3.4	0.7	289	31	3.6	1.9	003	31	5.0	2.0	269	31	1.4	0.7	357	31	0.8	0.5	031	31	4.7	2.8	020				
a. g.	21	9.7	1.5	069	31	9.8	2.5	345	29	5.0	1.3	313	31	12.0	9.7	355	31	10.0	7.0	003	31	6.9	4.2	008				
t. m. s. l.	21	9.2	5.2	217	31	10.6	1.1	244	29	5.1	1.5	311	31	13.2	10.5	001	31	12.1	8.9	022	31	7.2	4.4	007				
"	21	7.3	3.6	244	31	8.7	2.2	240	29	5.5	1.5	303	31	14.5	11.3	013	31	15.1	10.2	027	31	7.7	4.7	016				
"	20	6.3	4.0	294	30	7.5	2.7	289	29	5.2	2.0	295	31	11.7	7.5	018	31	12.5	6.5	016	31	7.9	3.7	014				
"	20	9.5	6.4	336	30	8.5	4.8	334	29	7.3	5.3	307	30	10.2	2.4	259	31	10.6	2.5	321	31	8.7	2.0	291				
"	18	11.4	7.8	325	30	9.8	7.3	317	28	12.3	9.8	302	30	11.3	8.3	242	31	10.5	5.7	265	31	11.2	7.5	261				
"	13	14.7	9.7	303	27	15.5	12.4	286	29	15.3	12.4	291	28	15.0	13.0	258	30	14.8	12.6	255	30	18.0	15.9	258				
"					18	21.8	19.4	269	19	23.5	22.4	278	8	30.1	29.5	264	28	29.8	27.3	259	29	32.6	30.0	263				
"					8	29.8	27.8	251	15	28.0	25.4	268	2	34.0	33.4	275	24	42.8	39.7	263	27	40.9	38.7	263				
"					3	31.7	30.7	270	12	30.8	27.4	280	1	37.0	37.0	290	12	40.7	39.0	265	25	47.1	44.5	263				
"									8	46.5	36.7	263					7	43.6	40.3	265	18	56.6	52.8	254				
"									6	50.0	40.1	247					1	47.0	47.0	310	5	61.8	60.7	260				
Station	BIKANER												CHIKALTHANA															
in I. S. T.	0130				0730				1430				0130				0730				1430							
at Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
at sea	31	1.4	0.5	060	31	0.6	0.2	059	31	2.3	1.4	021	31	3.2	0.7	055	31	1.6	1.1	094	31	3.7	2.8	207				
a. g.	30	14.3	11.0	050	29	10.9	7.6	075	31	5.6	3.1	358	31	12.0	5.7	079	31	8.2	5.5	093	31	6.1	4.1	196				
t. m. s. l.	30	11.5	8.9	056	30	7.9	4.7	095	31	5.1	3.1	024																
"	30	11.2	7.7	050	29	10.3	5.8	042	31	6.2	3.6	019																
"	30	8.4	1.9	008	28	9.2	4.4	021	31	6.4	2.5	011	31	13.8	6.8	088	31	11.1	6.4	124	31	6.0	4.5	195				
"	28	8.5	5.5	271	28	9.0	5.1	330	30	7.4	2.8	295	31	9.9	5.2	164	31	11.7	7.8	167	31	8.1	5.9	202				
"	28	11.2	8.2	274	28	11.5	6.3	305	28	10.5	5.5	264	31	10.0	7.9	195	31	10.0	8.6	200	30	9.1	6.3	210				
"	24	13.2	10.6	269	26	14.0	9.3	285	29	16.2	12.7	267	31	12.5	9.9	229	31	12.7	9.9	247	29	12.4	10.3	246				
"	4	15.0	13.0	247	14	24.3	23.3	265	26	27.8	26.1	265	6	18.5	16.2	269	30	23.8	21.6	268	24	23.8	20.7	258				
"					11	32.2	30.5	263	21	33.4	31.6	265	1	13.0	13.0	310	27	27.9	25.8	262	23	29.3	25.7	261				
"					6	42.3	41.2	259	17	38.5	36.8	265	1	18.0	18.0	305	26	31.5	28.9	262	21	33.4	29.9	267				
"									5	58.0	57.4	257					12	38.8	34.7	269	11	43.5	40.3	251				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

January 1956

Station.	COCHIN												DUM DUM											
	0130				0730				1430				0130				0830 *				1430			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	0.7	0.6	069	31	2.4	2.2	055	31	7.0	6.5	254	31	1.6	0.6	005	31	2.7	2.0	356	31	3.4	2.1	
0.15 a. g.	31	5.2	2.7	064	31	7.0	6.3	076	31	5.7	5.3	269	31	9.1	1.6	315	31	7.7	4.1	350	31	6.2	4.4	
0.3 a. m. s. l.	31	5.5	2.3	056	31	6.3	4.7	062	31	4.4	3.4	286	31	8.1	2.4	315	31	7.5	4.7	338	31	6.4	4.9	
0.6 „	31	5.5	1.9	064	31	5.0	3.4	062	31	3.5	2.1	354	31	8.0	4.3	301	31	7.8	5.3	315	31	7.1	5.9	
0.9 „	31	4.9	2.5	082	30	4.3	2.3	059	30	5.0	4.1	045	31	9.8	7.8	300	31	8.3	5.5	300	31	8.7	7.8	
1.5 „	31	6.5	4.5	062	31	5.5	3.0	073	31	6.6	5.1	067	30	16.9	15.2	303	31	15.6	14.2	290	31	17.1	15.6	
2.1 „	26	8.3	6.1	066	30	7.6	2.9	100	29	7.3	3.2	073	28	20.5	19.9	297	31	17.4	15.7	294	31	22.2	20.6	
3.0 „	24	8.2	5.6	089	29	7.1	3.6	126	30	7.3	3.4	085	12	23.0	21.2	295	31	24.8	23.0	287	31	27.6	25.7	
4.5 „	4	4.0	3.7	070	28	7.8	4.0	075	29	6.8	2.1	066					31	34.4	32.4	279	28	37.3	36.2	
5.4 „	1	10.0	10.0	005	26	8.5	4.7	098	26	8.6	4.2	085					31	40.4	38.8	274	28	45.8	44.3	
6.0 „	1	7.0	7.0	010	24	9.9	6.1	092	23	9.7	5.1	087					31	45.3	43.5	270	23	49.4	47.4	
7.2 „					20	10.7	6.0	089	12	11.7	9.4	092					30	49.3	47.3	266	10	56.5	53.0	
9.0 „					9	8.8	3.6	090	9	12.6	9.3	088					28	57.7	53.6	264				

Station	DUM DUM				GADAG												GAUHATI							
	2030 *				0130				0730				1430				0130				0830			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	0.8	0.2	080	31	8.5	4.8	131	31	8.3	6.9	137	31	5.5	4.1	114	31	0.6	0.5	045	31	3.0	1.9	
0.15 a. g.	30	7.0	1.8	309	31	15.1	9.3	106	31	15.9	12.1	125	31	7.4	5.5	103	26	4.3	0.8	094	31	4.8	2.9	
0.3 a. m. s. l.	30	5.9	2.1	315													26	4.9	0.7	076	31	5.5	2.6	
0.6 „	30	6.3	4.2	305													26	7.3	1.1	256	31	6.0	1.9	
0.9 „	30	7.7	6.5	300	31	15.9	11.3	101	31	16.0	12.9	114	31	7.9	6.1	078	24	8.0	3.7	249	30	6.5	0.9	
1.5 „	30	15.1	14.0	297	31	11.7	10.4	102	31	9.8	8.1	091	31	9.0	7.6	102	18	8.9	6.7	251	31	9.2	3.7	
2.1 „	30	18.3	15.1	297	31	7.7	4.9	101	31	8.2	4.9	086	31	8.8	5.8	108	14	10.6	7.9	260	31	11.0	7.0	
3.0 „	30	25.5	24.7	286	31	7.7	0.5	202	31	8.9	1.2	202	28	7.2	1.9	149	9	26.9	25.7	275	29	26.1	22.7	
4.5 „	30	36.1	35.3	278	22	9.7	5.9	245	31	10.1	5.9	240	28	10.3	5.1	235					28	44.5	41.8	
5.4 „	30	43.1	42.0	275	14	11.6	6.5	270	31	11.7	7.7	263	28	14.9	6.6	250					28	57.5	55.4	
6.0 „	30	47.7	46.2	273	11	14.2	10.6	252	31	14.7	9.5	261	26	15.8	7.5	259					24	62.0	60.7	
7.2 „	30	55.9	54.3	266	1	32.0	32.0	280	19	17.6	9.0	249	19	17.8	12.0	250					17	64.6	63.5	
9.0 „	25	66.9	63.4	262					7	14.7	10.8	220	8	21.5	16.1	239					15	94.5	91.1	

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9·0 Km, above mean sea level

January 1956

Stn.	GAUHATI								GAYA								GOPALPUR											
	1430				2030 *				0130				0730				1430				0130							
in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D				
in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
ce	31	3·4	2·5	337	30	3·1	0·6	111	31	1·9	0·9	230	31	2·8	1·2	214	31	6·3	4·7	294	31	3·6	2·5	280				
a. g.	30	5·2	2·6	333	30	4·2	0·8	114	30	8·3	3·8	278	31	8·8	5·0	243	31	7·9	5·4	303	31	8·4	5·5	235				
m. s. l.	30	5·3	2·3	331	30	4·4	0·7	119	30	8·4	4·5	296	31	8·9	4·6	260	31	7·9	5·6	297	31	7·5	5·7	209				
„	30	5·0	2·1	314	30	5·1	0·3	248	29	10·8	8·8	308	31	9·2	6·2	297	31	8·7	7·1	292	31	7·3	4·9	191				
„	30	6·2	2·7	282	30	5·6	2·4	247	29	11·4	10·5	299	31	10·9	8·8	293	30	10·4	9·7	292	31	6·3	2·2	170				
„	30	10·8	9·4	242	30	8·7	7·5	251	28	15·6	14·8	286	31	16·4	14·8	287	29	17·4	16·7	290	30	7·4	4·0	335				
„	26	16·1	14·7	245	30	12·1	10·8	246	28	17·1	16·3	286	30	19·4	18·1	288	29	21·2	19·2	289	29	11·1	7·1	325				
„	23	26·2	24·0	262	28	23·9	23·2	273	24	20·2	19·7	290	26	21·5	19·7	285	27	26·1	24·9	289	24	14·3	7·7	286				
„	14	39·6	37·6	268	28	50·8	50·2	271					11	29·4	28·8	272	25	34·0	33·0	279	7	17·9	12·7	259				
„	10	52·7	51·0	274	28	58·5	57·8	271					7	35·3	34·6	273	18	41·2	40·2	276	3	16·3	14·2	261				
„	7	57·8	54·0	282	27	63·2	61·3	271					4	39·7	39·5	263	15	47·3	46·9	276	2	20·0	20·0	251				
„	4	62·7	50·9	290	28	66·1	64·2	270					1	43·0	42·9	250	8	56·6	55·0	272								
„					16	96·7	93·2	271									2	83·0	82·9	268								
Stn.	GOPALPUR								GORAKHPUR								GWALIOR											
in I. S. T.	0730				1430				0730				1430				0130				0730							
in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	n	D	n	V	v	D				
ce	31	3·6	3·1	346	31	7·5	6·2	154	31	1·7	1·0	258	31	3·9	2·4	254	31	1·8	0·8	301	31	1·7	0·6	287				
a. g.	31	7·9	4·5	311	31	9·5	7·5	147	31	9·4	7·0	298	31	7·3	5·6	260	30	9·8	3·2	039	28	9·0	3·2	337				
m. s. l.	31	6·4	2·1	216	31	8·5	5·6	132	31	9·6	7·8	293	31	7·6	5·9	269	30	7·6	1·8	012	28	7·0	2·7	324				
„	31	6·0	2·2	207	31	5·4	2·4	118	31	11·6	9·9	293	31	10·0	8·2	285	30	11·0	1·9	033	28	11·5	3·8	353				
„	31	6·0	0·1	177	31	5·6	1·9	360	30	13·4	11·1	292	31	12·8	10·5	290	30	9·9	2·4	300	27	10·3	2·9	311				
„	30	8·8	4·7	015	31	8·3	5·5	328	29	16·5	15·3	290	30	17·6	16·8	290	29	11·2	8·4	283	27	12·1	8·6	276				
„	30	9·8	5·4	344	31	11·1	8·1	310	30	21·7	19·4	293	30	22·4	21·8	294	29	17·2	15·7	257	27	16·5	14·5	275				
„	29	13·5	8·9	303	31	14·8	10·4	290	25	23·6	22·6	287	30	28·8	27·7	289	22	25·8	24·8	265	26	24·7	22·8	271				
„	26	19·5	16·9	280	30	23·6	21·8	279	4	31·2	30·1	279	24	36·9	36·1	278					15	38·5	36·4	279				
„	21	22·0	19·0	254	30	28·2	26·5	271	2	47·5	44·9	285	10	48·1	47·2	273					13	47·0	44·1	277				
„	18	24·8	22·6	257	30	30·3	27·5	271					5	52·4	50·6	273					10	56·7	53·4	278				
„	10	31·8	27·6	256	18	35·2	32·0	275					1	41·0	41·0	300					8	59·0	55·0	275				
„	4	31·3	29·5	237	8	42·6	35·6	270													4	84·7	82·7	265				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9·0 Km. above mean sea level

January 1956

Station.	GWALIOR				IMPHAL				JABALPUR																			
	1430				0730				1430				0130				0730				1430							
Time in I. S. T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	3·3	2·1	335	31	0·8	0·8	189	31	7·8	7·0	232	31	1·4	0·8	105	31	1·4	0·7	120	31	2·8	1·4					
0·15 a. g.	31	6·6	4·4	334	31	2·1	1·1	174	31	8·1	7·4	238	31	9·5	4·7	093	31	9·0	4·1	124	31	5·4	3·1					
0·3 a. m. s. l.	31	6·1	4·0	337																								
0·6 "	30	6·6	3·7	325									31	10·2	4·2	085	31	9·6	3·5	127	31	5·5	3·1					
0·9 "	30	7·2	3·8	294	31	2·5	1·6	157	31	8·0	7·3	237	31	11·1	2·5	144	30	10·9	1·4	206	31	5·8	3·2					
1·5 "	30	10·0	8·6	275	31	7·1	4·3	261	31	9·1	8·2	254	31	12·5	7·8	250	31	12·9	6·5	258	31	9·4	7·0					
2·1 "	30	15·4	13·8	267	29	12·3	8·7	259	29	10·5	9·3	265	31	15·9	12·2	257	31	15·4	13·2	275	31	15·4	11·9					
3·0 "	28	26·7	24·7	265	29	23·1	21·7	280	26	25·4	23·0	272	29	18·5	15·5	267	28	18·6	16·4	279	30	19·3	16·7					
4·5 "	22	37·6	35·6	275	9	28·0	23·1	274	19	44·4	42·6	279	4	24·7	24·6	265	14	24·3	22·4	269	26	33·0	30·6					
5·4 "	21	46·1	44·0	274	6	35·2	32·8	290	13	54·1	48·3	274					3	32·0	29·9	272	18	39·0	36·1					
6·0 "	21	54·7	52·6	274	3	27·0	23·7	299	5	54·2	49·3	284					2	31·0	28·7	267	16	45·0	41·5					
7·2 "	15	68·3	65·9	264	1	38·0	38·0	265	1	66·0	66·0	310									6	49·2	45·4					
9·0 "	4	71·7	68·5	281																								

Station.	JAGDALPUR				JAIPUR				JAMSHEDPU															
	0130				0730				1430				0730											
Time in I. S. T.																								
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v					
Surface	31	0·9	0·4	205	31	0·5	0·2	234	31	2·4	0·7	269	31	3·3	2·1	055	31	3·8	1·4	327	31	2·2	1·8	
0·15 a. g.	31	7·0	1·8	291	31	5·2	1·2	070	31	4·2	0·9	304	29	10·2	6·4	045	31	6·5	2·2	335	30	5·1	3·9	
0·3 a. m. s. l.																					30	5·0	3·3	
0·6 "	31	3·5	0·8	265	31	2·5	0·1	245	31	3·4	0·9	278	29	10·2	5·6	048	31	6·7	2·1	335	31	6·8	3·2	
0·9 "	31	8·1	0·4	061	31	6·3	0·7	004	31	4·4	0·7	280	29	8·9	2·1	347	31	6·7	2·9	321	31	8·0	5·3	
1·5 "	31	5·5	1·0	302	31	6·4	2·6	354	31	4·8	1·0	058	29	8·0	5·2	287	30	8·0	4·4	286	31	13·0	11·4	
2·1 "	31	8·3	3·0	302	31	9·7	4·2	335	30	6·8	2·5	317	28	13·1	11·4	278	29	14·1	10·9	261	29	19·2	17·3	
3·0 "	28	13·8	8·1	295	28	12·4	5·3	295	25	12·7	7·4	266	26	22·2	19·6	257	28	25·1	20·8	259	28	23·0	20·8	
4·5 "	11	19·3	16·1	275	26	18·2	15·5	267	22	20·8	17·8	272	18	39·5	37·3	264	24	36·5	31·3	262	11	26·5	25·7	
5·4 "	4	21·0	20·6	257	24	23·4	19·7	266	22	26·0	23·7	267	2	63·0	62·1	261	17	41·4	39·7	264	3	34·0	33·4	
6·0 "	3	22·7	22·6	260	23	25·6	21·8	266	21	27·7	24·6	266					9	45·3	43·4	270	1	39·0	39·0	
7·2 "	1	37·0	37·0	265	12	29·8	26·1	250	16	35·8	31·5	267					4	69·5	69·0	268				
9·0 "					2	32·5	32·3	222	5	48·4	42·7	256												

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

January 1956

m.	JAMSHEDPUR				JHARSUGUDA								JODHPUR															
	1430				0130				0730				1430				0130				0730							
in I. S. T.																												
1 Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
cc.	31	3.0	1.9	286	31	3.1	2.1	029	31	3.7	3.4	025	31	3.2	2.2	274	31	6.7	6.0	038	29	6.2	6.1	038				
a. g.	30	4.2	2.5	291	30	8.8	0.8	345	31	9.5	7.9	051	31	4.4	2.6	262	31	16.4	12.5	057	29	13.0	11.0	072				
m. s. l.	30	4.2	2.5	287	30	7.0	2.4	021	31	8.0	7.2	044	31	4.5	2.6	266	31	14.2	11.1	052	29	11.2	10.0	060				
„	30	5.2	4.0	286	30	9.3	2.6	266	31	8.5	3.3	017	31	4.7	3.4	261	31	15.1	10.6	055	29	12.3	6.0	069				
„	31	6.4	4.8	287	30	9.0	4.7	260	31	8.0	3.0	314	31	5.5	4.1	263	31	12.1	5.4	075	29	10.5	5.5	289				
„	31	13.6	12.3	289	30	9.7	6.6	273	31	10.2	7.5	290	31	9.3	7.1	288	30	9.7	3.9	228	29	9.9	2.5	312				
„	30	19.2	17.4	290	27	12.3	8.9	281	31	14.5	12.5	294	31	14.2	11.8	292	28	12.0	9.7	243	28	10.9	7.3	256				
„	29	24.4	22.9	286	15	15.8	12.8	300	28	18.7	15.9	300	28	20.2	17.8	284	24	19.3	16.1	258	25	19.7	17.1	266				
„	24	36.0	34.9	278					6	25.2	23.8	273	22	32.4	30.1	287	1	33.0	33.0	285	14	31.4	29.4	263				
„	21	45.6	43.8	273					2	23.0	23.0	248	14	35.2	34.3	272					9	39.1	36.1	262				
„	17	49.4	47.2	272					1	35.0	35.0	240	10	40.6	39.2	270					3	54.0	53.3	280				
„	2	48.5	43.6	278									3	49.3	46.7	268					1	45.0	45.0	280				
„	2	67.0	48.7	268									1	70.0	70.0	245												

m.	JODHPUR				MADRAS								MANGALORE															
	1430				0130				0830 *				1430				2030 *				0130							
in I. S. T.																												
1 Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
cc.	31	7.0	3.3	047	31	3.5	2.0	020	30	5.9	3.3	035	31	7.5	6.4	075	31	6.5	5.3	070	31	5.9	5.2	059				
a. g.	31	7.3	3.0	019	31	9.8	8.0	065	30	9.2	5.7	048	31	10.0	9.0	074	31	8.6	7.6	071	31	7.8	6.7	004				
m. s. l.	31	7.3	3.3	015	31	10.7	8.9	072	30	10.0	7.1	053	31	10.1	9.1	072	31	9.9	8.5	072	31	8.4	7.0	348				
„	31	7.2	2.5	040	30	11.0	10.0	070	30	11.3	8.9	063	31	9.6	8.2	063	31	10.8	9.6	070	31	8.8	6.4	350				
„	31	6.9	1.5	036	30	11.5	10.3	067	30	12.2	9.7	068	31	10.4	8.7	057	31	10.8	8.7	073	31	7.5	4.0	015				
„	30	7.7	2.3	261	30	12.3	9.1	064	30	13.8	11.2	072	28	11.4	9.8	062	31	12.5	9.9	073	31	9.3	7.7	098				
„	30	14.1	11.6	252	29	10.9	5.4	074	30	12.2	6.7	084	27	10.4	6.7	063	31	10.5	5.7	078	29	10.8	8.5	102				
„	27	22.2	19.0	259	22	8.1	3.9	054	30	9.6	5.5	103	26	7.0	1.3	094	31	8.6	3.4	084	24	7.9	4.3	112				
„	24	34.0	31.8	264	8	6.9	1.3	084	30	9.6	5.1	104	22	6.8	0.4	124	31	7.9	2.1	085	6	9.2	7.8	109				
„	23	45.4	43.4	267	4	9.8	4.5	114	30	11.4	4.9	096	20	8.5	2.5	044	31	9.7	1.7	054	3	3.7	2.5	154				
„	22	54.3	52.7	265	4	10.3	7.0	081	30	12.8	3.8	111	20	9.1	0.9	028	31	11.4	2.3	066	2	4.5	4.3	107				
„	12	64.0	59.9	264					30	13.8	1.0	222	18	12.7	2.6	043	31	13.9	1.1	199								
„	2	70.0	69.0	278					26	17.5	5.4	232	16	13.6	3.3	019	25	16.9	4.8	237								

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

January 1956

Station.	MANGALORE								MASULIPATNAM												MINICOY							
	0730				1430				0130				0730				1430				0130							
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D				
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface.	30	7.7	7.4	085	31	8.5	5.9	265	31	2.4	1.5	071	31	4.3	4.0	023	31	5.5	4.9	118	31	2.8	2.3	0				
0.15 a.g.	30	12.0	10.4	072	31	7.2	5.3	279	31	8.3	6.8	125	31	8.0	5.9	065	31	7.8	6.9	123	31	7.1	5.5	0				
0.3 a. m. s. l.	30	13.2	8.9	064	31	6.5	3.0	291	31	8.8	7.6	124	31	7.5	6.0	104	31	8.2	7.0	118	31	7.3	5.8	0				
0.6 „	30	11.2	6.6	058	31	4.9	2.3	065	31	9.6	8.5	114	31	8.7	7.5	112	31	8.2	5.9	109	31	7.8	6.4	0				
0.9 „	30	10.1	5.5	073	31	5.8	4.5	092	30	11.3	9.5	099	31	10.0	8.2	101	31	8.9	6.0	092	31	8.6	7.7	0				
1.5 „	30	8.6	6.1	102	31	8.3	7.5	091	31	11.7	7.5	073	30	12.4	8.4	071	31	10.4	6.9	068	30	8.8	5.9	0				
2.1 „	30	7.6	4.8	107	31	9.0	6.0	095	31	11.6	5.4	066	30	12.3	6.2	065	31	11.8	6.0	0.75	28	10.0	7.3	0				
3.0 „	28	10.3	4.0	11.4	31	8.1	4.3	120	28	9.8	2.7	310	27	9.4	2.0	312	29	9.2	2.0	270	22	9.3	2.4	1				
4.5 „	27	9.4	3.3	133	31	8.1	1.9	107	6	9.7	6.5	274	25	11.2	5.6	247	28	10.9	6.6	274	17	6.5	2.8	0				
5.4 „	24	9.7	3.0	130	31	10.5	0.5	079	3	6.7	5.5	245	24	12.6	7.7	252	26	14.8	8.0	272	11	7.1	3.0	0				
6.0 „	19	10.8	2.4	169	31	11.2	1.3	190	2	13.5	5.6	243	20	15.7	11.3	256	24	17.0	7.7	265	19	10.0	2.3	0				
7.2 „	14	15.5	5.1	201	30	15.0	3.4	250	1	10.0	10.0	230	14	25.5	21.2	267	13	20.2	14.5	251	3	15.0	10.3	0				
9.0 „	9	20.6	9.9	179	27	17.6	7.4	220					8	25.1	19.5	250	5	37.0	32.9	246	1	13.0	13.0	2				
Station.	MINICOY								MOHANBARI												MUSSOORIE							
Time in I. S. T.	0730				1430				0130				0730				1430				0730							
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	2.1	1.4	058	31	3.4	2.8	053	31	0.3	0.3	035	31	1.6	1.5	055	31	1.6	1.2	036	31	2.4	0.9	0				
0.15 a. g.	31	6.4	4.5	046	31	7.2	5.9	040	24	6.1	5.2	057	29	6.6	5.9	053	29	4.2	2.8	048	27	7.4	3.3	0				
0.3 a.m.s. l.	31	6.5	4.7	048	31	7.6	6.4	041	24	6.0	5.1	053	29	7.1	6.5	052	29	4.2	3.0	052								
0.6 „	31	7.2	5.5	056	30	8.1	6.9	050	24	5.0	4.5	045	29	5.5	4.1	051	29	2.9	1.2	097								
0.9 „	29	8.0	6.4	083	30	8.6	7.3	064	24	4.9	3.0	051	29	4.9	2.1	066	29	3.5	0.3	165								
1.5 „	28	9.9	7.0	078	24	8.5	6.5	083	24	6.5	1.6	077	26	5.4	2.5	207	25	6.5	3.7	211								
2.1 „	24	8.3	2.7	088	20	9.9	0.3	158	23	5.6	1.9	232	21	4.2	1.9	167	24	8.5	6.5	200	27	5.9	2.4	0				
3.0 „	19	8.3	4.9	204	15	9.2	3.5	160	20	8.9	5.4	240	19	6.4	3.7	160	21	9.1	6.4	200	27	9.6	2.3	2				
4.5 „	14	8.3	3.3	127	13	2.9	2.7	141	2	14.0	13.5	281	13	28.0	19.6	269	16	27.6	23.8	257	25	15.8	12.7	2				
5.4 „	14	11.0	7.7	089	11	10.1	6.7	091					6	40.5	20.9	282	14	49.1	41.3	273	22	26.1	22.3	2				
6.0 „	13	15.5	11.9	100	11	12.4	7.8	082					5	31.8	18.4	290	13	60.4	55.9	267	22	32.6	29.0	2				
7.2 „	8	18.5	14.7	118	7	13.6	9.5	102					1	8.0	8.0	330	4	47.5	36.7	311	10	45.8	43.9	2				
9.0 „	5	21.4	11.8	111	2	27.5	26.9	123									2	91.0	87.9	271	2	65.5	65.5	2				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

January 1956

n.	MUSSOORIE				NAGPUR												NEW DELHI							
	1430				0130				0830*				1430				2030*				0130			
in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
ce . . .	31	5.3	4.8	205	31	4.5	1.8	041	29	3.9	3.2	029	31	3.0	1.3	139	28	4.1	2.6	118	31	3.4	2.7	328
a. g. . .	24	5.7	5.0	202	31	11.0	4.9	119	29	5.2	3.3	047	31	4.1	1.5	160	27	5.1	2.9	124	30	11.7	7.8	342
m. s. l. .																	30	10.1	6.6	342				
„ . . .					31	11.2	5.7	147	29	6.3	3.5	052	31	4.4	1.9	164	27	5.6	3.0	193	30	10.5	6.9	333
„ . . .					31	9.1	4.1	165	29	9.5	3.0	144	31	5.2	1.7	189	27	7.1	3.1	155	30	9.4	6.9	311
„ . . .					31	7.9	3.2	257	29	9.2	3.7	238	31	6.8	2.9	250	27	7.7	2.5	261	29	11.0	9.4	293
„ . . .	24	6.6	5.8	208	31	9.8	5.8	273	29	10.7	5.2	265	30	10.8	7.1	269	27	8.5	4.8	284	29	12.0	9.3	286
„ . . .	24	11.1	0.6	015	25	15.1	11.9	267	29	14.0	11.0	265	28	15.6	13.0	276	27	14.0	11.7	274	21	16.7	14.4	277
„ . . .	23	17.7	8.3	269	1	14.0	14.0	256	29	26.0	24.4	265	26	27.1	25.1	269	28	25.9	21.8	269				
„ . . .	17	27.7	15.5	277					29	32.7	30.0	263	27	34.3	32.1	266	27	32.7	30.7	265				
„ . . .	15	34.6	23.2	281					28	36.7	34.7	263	27	37.6	35.0	264	27	36.8	34.4	264				
„ . . .	9	45.3	42.7	262					28	38.9	36.6	266	21	44.9	41.0	269	27	38.1	36.1	262				
„ . . .	1	86.0	86.0	260					23	55.8	50.1	262	10	61.2	50.0	248	20	55.9	51.5	260				

n.	NEW DELHI												POONA											
	0830*				1430				2030*				0130				0730				1430			
in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
ce . . .	31	3.7	3.4	311	31	7.8	6.6	317	31	3.6	2.7	311	31	1.1	0.9	220	31	0.1	0.1	225	31	1.4	0.2	017
l. g. . .	31	5.3	4.2	312	31	8.9	7.1	312	31	5.3	3.8	315	31	4.9	3.1	274	31	3.6	1.2	099	31	5.0	0.9	181
m. s. l. .	31	5.0	3.9	313	31	9.2	7.4	312	31	4.6	3.2	318												
„ . . .	31	7.8	5.6	309	31	9.5	6.8	306	31	6.8	5.0	315	31	3.5	2.7	233	31	2.5	1.4	211	31	4.0	0.4	195
„ . . .	31	10.9	7.2	303	28	10.5	8.9	298	31	9.2	6.6	318	31	7.0	3.1	316	31	7.9	4.1	110	31	5.3	2.2	188
„ . . .	31	11.0	8.6	294	28	10.5	8.7	299	31	11.1	7.7	295	31	11.0	5.7	152	31	11.1	7.8	152	31	5.8	4.4	200
„ . . .	31	11.5	8.0	296	28	11.8	10.5	291	31	11.4	7.7	275	31	11.5	10.3	142	31	11.6	9.7	167	30	7.7	5.9	211
„ . . .	31	15.6	13.2	268	28	18.8	17.9	275	31	16.8	14.9	265	29	11.1	8.3	227	29	12.5	7.9	240	30	12.0	8.9	252
„ . . .	31	27.4	25.2	263	26	29.5	26.9	274	31	27.9	25.5	267	4	22.3	19.1	261	26	19.7	16.8	258	30	20.2	16.5	265
„ . . .	31	36.1	33.9	265	24	38.2	36.1	275	31	36.7	34.4	268					24	23.2	19.3	262	25	26.8	21.6	263
„ . . .	31	44.5	41.6	265	23	46.9	44.6	276	31	43.6	41.1	266					19	25.0	20.6	272	22	28.3	22.5	268
„ . . .	31	56.0	52.9	268	22	62.8	59.5	275	31	55.2	54.3	265					6	37.8	33.5	265	19	36.5	32.9	266
„ . . .	29	83.3	80.0	265	20	100.7	96.3	273	28	83.8	79.1	263									1	71.0	71.0	290

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

January 1956

Station.	POONA				PORT BLAIR												RAIPUR							
	2030*				0130				0730				1430				0130				0730			
Time in I. S. T.																								
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	
Surface . . .	20	2.5	2.4	278	31	5.2	3.9	032	31	5.0	4.5	043	31	8.4	7.8	045	31	2.3	0.5	209	31	1.5	0.4	
0.15 a. g. . .	20	9.1	8.1	245	31	11.6	11.0	040	31	12.3	11.3	039	31	12.7	12.1	046	31	10.3	0.7	050	31	8.5	4.0	
0.3 a. m. s. l. . .					31	12.1	11.5	040	31	13.2	12.3	043	31	13.4	12.7	047								
0.6 " . . .	20	4.9	4.5	293	31	13.5	12.8	050	31	15.2	14.4	056	31	13.1	12.1	052	31	10.1	0.9	041	31	9.8	2.5	
0.9 " . . .	20	10.8	8.9	286	28	13.0	12.0	065	29	14.8	13.3	076	31	12.0	10.2	061	31	6.9	0.9	291	31	8.1	1.1	
1.5 " . . .	20	9.1	4.2	246	17	14.5	10.3	079	26	15.9	14.1	095	29	12.0	9.4	070	31	7.4	2.9	273	31	8.5	3.4	
2.1 " . . .	20	9.3	4.1	153	12	9.7	7.0	078	24	12.2	10.7	091	22	10.7	7.5	081	31	12.0	5.9	275	31	12.1	8.6	
3.0 " . . .	20	7.3	2.0	155	9	9.6	6.0	062	20	7.7	3.7	081	14	7.6	4.1	065	30	15.0	11.9	282	31	16.5	12.6	
4.5 " . . .	19	14.8	10.5	252	1	6.0	6.0	325	14	11.5	6.7	050	9	9.0	3.7	027	1	13.0	13.0	260	25	23.4	21.7	
5.4 " . . .	9	15.6	14.4	228					12	12.1	5.2	047	9	15.2	7.2	006	1	19.0	19.0	270	16	31.2	29.3	
6.0 " . . .	6	16.5	15.3	268					10	17.1	8.2	034	7	16.6	9.0	350	1	35.0	35.0	270	13	36.0	34.4	
7.2 " . . .	1	30.0	29.6	280									2	10.0	5.3	321								
9.0 " . . .													1	19.0	19.0	275								

Station.	RAIPUR				SANTACRUZ												TEZPUR							
	1430				0130				0830*				1430				2030*				0130			
Time in I. S. T.																								
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	1.9	0.9	266	31	0.6	0.5	025	31	4.8	3.2	055	31	7.4	6.6	292	31	8.1	7.7	335	31	1.6	1.4	
0.15 a. g. . .	31	4.2	1.3	261	31	6.8	5.0	020	26	10.2	7.0	050	31	6.9	5.4	289	27	15.1	13.9	335	30	10.9	8.9	
0.3 a. m. s. l. . .					31	8.0	6.7	011	26	9.9	6.7	045	31	5.6	3.4	301	27	14.0	11.7	325	30	10.5	8.0	
0.6 " . . .	31	4.6	1.7	271	31	8.4	7.1	359	26	9.1	4.1	050	31	4.9	0.8	180	27	11.6	6.5	305	30	7.6	4.1	
0.9 " . . .	31	4.9	2.1	259	31	7.7	5.0	340	26	7.6	1.6	061	31	6.0	2.5	165	27	7.8	3.8	247	30	7.1	1.8	
1.5 " . . .	31	7.2	3.8	271	30	9.8	4.5	185	26	10.3	6.6	185	31	10.5	9.3	187	27	10.9	7.1	180	25	6.1	3.5	
2.1 " . . .	31	11.9	8.3	282	30	12.2	10.5	164	26	14.2	12.2	186	30	13.0	10.8	193	27	13.8	8.4	171	22	6.2	4.2	
3.0 " . . .	30	16.3	13.5	279	23	15.1	10.4	218	26	14.7	11.6	235	30	13.1	9.7	245	27	12.6	6.8	200	12	15.7	12.1	
4.5 " . . .	27	28.2	26.3	275	1	12.0	12.0	315	25	22.4	18.5	360	30	22.4	18.4	263	25	19.7	16.2	255				
5.4 " . . .	24	35.9	33.9	270	1	25.0	25.0	335	23	26.0	22.6	265	30	25.7	22.2	265	24	24.2	20.9	260				
6.0 " . . .	22	41.4	38.7	265					23	29.0	25.3	270	30	30.1	25.6	260	24	28.8	26.0	260				
7.2 " . . .	10	46.3	43.8	259					20	32.7	29.5	270	30	35.5	31.7	259	24	37.1	34.0	267				
9.0 " . . .									18	50.9	46.0	260	18	45.4	41.5	262	20	55.3	49.9	255				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9·0 Km. above mean sea level

January 1956

I. S. T.	TEZPUR								TIRUCHIRAPALLI				TRIVANDRUM											
	0730				1430				0130				0730				1430				0130			
km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
.	31	1·7	1·3	056	31	1·5	0·7	052	31	6·0	5·4	028	31	4·9	4·6	016	31	6·5	5·9	056	31	1·7	1·2	043
g.	28	7·8	6·4	072	30	3·8	1·9	076	30	14·0	13·5	050	31	12·1	11·6	024	31	9·1	8·6	057	31	5·0	1·6	013
s. l.	28	8·8	7·0	085	30	4·0	2·3	076	30	15·0	14·4	050	31	12·7	12·2	032	31	9·6	9·1	056	31	5·1	1·4	331
„	27	7·5	5·4	098	30	4·0	1·1	087	30	16·3	15·8	060	31	13·4	12·8	054	31	10·7	10·3	056	31	5·3	1·5	340
„	26	6·0	2·8	107	30	5·0	1·1	199	26	15·7	14·9	058	31	13·7	12·5	056	31	11·6	11·0	055	31	5·5	2·6	049
„	24	6·1	1·4	209	28	7·6	5·9	224	23	12·1	10·0	042	30	11·6	9·2	055	30	12·1	11·0	053	31	7·3	6·0	065
„	21	5·5	1·6	214	27	8·9	7·1	225	13	8·4	3·4	057	24	8·7	6·1	077	22	8·9	7·0	056	29	7·2	2·7	089
„	19	12·2	5·8	286	23	14·0	10·6	270	11	7·5	4·7	128	21	8·3	5·0	110	14	7·1	2·1	109	27	8·8	2·5	114
„	10	38·1	33·5	278	17	42·0	41·5	274		17	7·8	4·1	092	8	7·4	1·3	030	20	7·9	4·0	081			
„	5	53·8	51·9	276	17	59·0	56·4	276		12	8·7	5·9	080	6	9·2	7·7	058	9	8·2	3·3	077			
„	3	56·0	53·1	270	13	67·0	63·0	281		11	9·9	7·4	062	5	13·2	12·5	069	5	9·0	4·9	043			
„	1	19·0	19·0	320	8	74·9	66·9	279		5	12·4	5·7	061	2	19·5	16·0	075							
„					2	93·0	71·8	322		2	13·5	12·9	137	2	21·5	19·9	085							
I. S. T.	TRIVANDRUM								UDAIPUR				VENGURLA											
	0730				1430				0130				0730				1430				0130			
n.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
.	31	2·0	1·8	050	31	3·8	3·3	248	31	0·5	0·5	294	31	0·1	0·1	315	31	1·6	0·3	186	31	2·8	2·8	357
.	31	5·3	3·2	068	31	6·5	5·9	240	31	7·0	5·1	007	31	5·7	4·8	355	31	5·1	1·3	190	31	12·5	12·0	014
s. l.	31	4·3	1·1	104	31	6·3	5·8	234													31	13·5	12·2	008
.	31	4·4	1·0	121	31	4·4	1·5	223													31	10·8	7·6	004
.	31	4·9	1·4	069	30	6·2	4·7	047	31	7·1	4·1	029	31	6·6	3·3	055	31	5·2	1·5	204	31	9·5	1·1	032
.	31	6·2	2·3	054	31	8·8	7·6	050	31	10·1	3·2	202	31	9·8	2·0	209	31	7·5	4·7	241	31	11·6	8·5	133
.	30	7·3	0·5	052	31	7·8	3·4	045	30	16·5	13·2	235	31	15·7	13·0	243	31	14·1	12·9	247	31	11·6	10·3	120
.	30	8·3	3·9	123	30	7·5	3·3	075	30	23·3	20·6	248	29	22·2	18·5	248	29	23·8	21·3	245	29	9·5	4·8	200
.	28	7·7	3·5	075	27	6·8	3·0	070	3	41·3	38·3	263	22	33·0	31·1	270	27	37·0	35·3	259	13	14·4	9·6	285
.	20	9·0	5·4	084	24	9·0	6·8	094					11	35·9	35·0	278	24	44·3	42·7	260				
.	17	12·3	8·7	086	22	12·5	10·5	099					5	39·4	38·4	283	24	51·2	49·3	263				
.	9	11·4	9·9	089	17	15·6	9·3	084					1	28·0	28·0	315	16	57·0	56·6	268				
.	3	16·0	15·0	116	6	19·7	18·6	086									2	54·0	52·9	269				

TABLE V—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds above 9·0 Km. above mean Sea level

January 1956

Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D
MADRAS					MASULIPATNAM					NEW DELHI					SANTACRUZ									
2030 hrs.*					1430 hrs.					0830 hrs.*					2030 hrs.*									
10.5	21	19.0	8.0	230	10.5	3	50.3	49.5	240	10.5	19	94.3	87.4	260	10.5	20	59.0	55.7	255					
12.0	13	18.3	9.7	196	12.0	1	54.0	54.0	230	12.0	12	102.3	91.4	267	12.0	18	54.7	51.7	260					
14.1	11	18.0	8.1	178	14.1	1	46.0	46.0	240	14.1	3	93.0	92.0	270	14.1	7	47.0	44.0	264					
					16.2	1	39.0	39.0	240						16.2	2	33.5	29.0	245					
										1430 hrs.					TIRUCHIRAPALLI									
MANGALORE					MINICOY					10.5	19	116.8	110.8	272										
0730 hrs.					0730 hrs.					12.0	1	164.0	164.0	290										
10.5	3	15.0	5.8	166											10.5	1	6.0	6.0	180					
12.0	1	7.0	7.0	290	10.5	3	15.0	12.0	149						0730 hrs.									
					12.0	1	21.0	21.0	200	10.5	21	97.2	91.0	265										
					1430 hrs.					12.0	10	107.7	100.0	259	10.5	1	19.0	19.0	080					
					1430 hrs.					14.1	3	97.7	96.4	270										
10.5	23	17.2	8.0	225	10.5	1	27.0	27.0	110						TRIVANDRUM									
12.0	14	18.1	9.0	206											1430 hrs.									
14.1	8	21.0	12.6	209																				
16.2	4	15.3	10.6	037																				
18.0	3	11.7	6.4	078																				
20.0	2	11.0	7.0	063																				
23.0	2	14.5	9.5	045	10.5	17	57.5	53.6	261	10.5	14	49.3	47.1	260	10.5	5	20.2	17.2	112					
26.0	1	41.0	41.0	040	12.0	13	60.1	55.8	258	12.0	12	50.3	44.3	255	12.0	2	24.5	24.0	130					
30.0	1	44.0	44.0	070	14.1	9	53.5	49.3	255	14.1	5	39.8	38.4	248										
										16.2	1	40.0	40.0	280										
															SANTACRUZ									
															0830 hrs.*									
															1430 hrs.									
										10.5	11	51.4	48.1	260	10.5	4	30.5	29.1	242					
MASULIPATNAM					10.5	1	63.0	63.0	235	12.0	1	39.0	39.0	270										
0730 hrs.																								
															VENGURLA									
															0730 hrs.									
10.5	4	19.0	15.7	255																				
12.0	1	5.0	5.0	200	10.5	16	62.0	56.6	264															
14.1	1	5.0	5.0	010	12.0	7	60.4	56.0	266															
16.2	1	7.0	7.0	105	14	1	23.0	23.0	260															
18.0	1	26.0	26.0	165																				
															VISAKHAPATNAM									
															1430 hrs.									
10.5	15	36.9	31.9	257																				
12.0	8	33.6	29.2	241																				

RADIOSONDE DATA

January 1956

ring the month, observations of upper air temperature, pressure and humidity were made at 13 stations in India as given in the list. For a detailed description of the instruments used a reference may be made to the I. M. D. Scientific Notes Nos. 112 and 113 (see IX).

LIST OF RADIOSONDE STATIONS IN INDIA

Name of station	Type of instrument used	Date of starting	Hours of routine observations in GMT during the month	Remarks
Allahabad	Clock type	1st October 1944	03 and 15	
Bombay	Clock type	7th September 1954	03 and 15	
Calcutta	Clock type	13th December 1946	03 and 15	Fan type used from 13th December 1946 to 30th November 1947.
Gauhati	Clock type	22nd July 1955	03 and 15	Shifted from Shillong.
Jodhpur	Clock type	17th April 1946	15	
Madras	Fan type	29th June 1946	03 and 15	
Nagpur	Fan type	1st October 1946	03 and 15	
New Delhi	Clock type	3rd December 1943	03 and 15	
Poona	Fan type	24th April 1944	15	
Port Blair	Fan type	4th December 1949	15	
Trivandrum	Fan type	1st July 1947	15	
Veraval	Fan type	3rd October 1944	15	
Visakhapatnam	Fan type	8th December 1946	15	

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(a) From ascents at 03 hrs. G. M. T.

January 1956

Standard pressure surface mbs.	ALLAHABAD Surf. Pr. (1004 mb.)						BOMBAY (1012 mb.)						CALCUTTA (1014 mb.)					
	No. of obs.	Ht. gpm.	Temperature °A				No. of obs.	Ht. gpm.	Temperature °A				No. of obs.	Ht. gpm.	Temperature °A			
			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point
Surface	27	98	287.8	293	283	283.3	30	9	293.8	299	291	291.2	31	6	291.9	295	288	286
1000	27	133	...	...	...	...	30	110	...	...	...	...	31	130	...	...	...	...
900	27	1025	287.0	291	283	276.3	30	1023	291.8	298	288	283.8	31	1029	287.8	291	282	278
850	27	1506	284.7	287	280	274.4	30	1512	288.6	293	285	281.2	31	1507	284.6	288	279	276
800	27	2009	281.9	285	277	273.0	30	2024	284.9	291	281	278.2	31	2014	282.1	288	278	272
700	27	3105	275.7	280	273	267.2	30	3132	280.2	284	276	268.4	31	3112	277.1	283	271	263
600	27	4338	269.1	273	265	...	30	4386	274.5	283	270	263.1	31	4356	271.7	280	265	256
500	27	5760	261.8	266	257	...	29	5834	266.3	278	258	...	31	5795	265.1	273	258	...
400	23	7445	251.5	256	244	...	27	7545	255.4	268	246	...	31	7500	255.3	261	245	...
300	19	9529	240.6	247	231	...	25	9652	243.0	257	234	...	31	9604	242.9	249	233	...
250	18	10799	231.7	238	223	...	20	10950	235.1	249	224	...	25	10883	235.0	241	228	...
200	17	12283	222.9	229	217	...	18	12451	223.9	237	216	...	23	12398	226.1	235	218	...
175	12	13150	217.2	225	204	...	18	13267	218.7	234	209	...	12	13300	221.6	230	213	...
150	8	14233	212.9	220	207	...	16	14281	212.9	231	203	...	10	14281	217.4	227	211	...
125							11	15415	208.6	229	201	...	6	15468	210.5	213	209	...
100							7	16889	209.3	227	204	...						
80																		
GAUHATI (1010 mb.)						MADRAS (1012 mb.)						NAGPUR (979 mb.)						
Surface	31	49	289.3	293	285	288.5	30	15	297.9	300	296	293.6	30	311	291.7	295	287	284
1000	31	137	...	...	...	...	30	124	...	...	...	...	30	131	...	...	...	...
900	31	1023	283.9	287	280	281.4	30	1038	290.7	294	288	285.7	30	1039	290.4	295	287	279
850	31	1498	280.4	285	275	277.3	30	1525	288.3	291	283	280.2	30	1521	287.5	291	284	277
800	31	1995	277.6	282	272	274.5	30	2039	286.4	292	281	273.9	30	2048	284.4	238	281	275
700	31	3072	272.5	279	266	266.0	30	3155	282.9	289	277	264.3	30	3139	278.3	283	274	267
600	30	4299	268.5	277	259	...	30	4422	276.7	283	271	262.5	30	4386	273.6	278	270	258
500	30	5718	262.4	269	252	...	30	5883	268.9	275	265	...	30	5827	265.1	272	260	...
400	30	7399	251.8	258	237	...	30	7611	258.6	265	255	...	30	7528	254.4	261	249	...
300	29	9471	240.5	249	229	...	25	9745	244.7	251	240	...	26	9622	241.3	246	238	...
250	27	10727	233.6	244	223	...	25	11029	236.3	242	230	...	25	10889	232.5	239	227	...
200	26	12222	224.9	238	214	...	22	12528	224.3	235	216	...	22	12383	223.4	229	218	...
175	18	13084	219.3	229	208	...	21	13390	217.3	228	207	...	22	13239	218.0	227	213	...
150	11	14073	215.5	225	207	...	20	14368	210.9	220	203	...	17	14207	212.0	218	205	...
125	7	15173	211.3	219	204	...	14	15485	205.3	216	197	...	12	15346	206.4	217	198	...
100	7	16508	205.6	215	199	...	12	16796	201.0	211	194	...	7	16676	201.3	212	193	...
80							5	18166	201.8	209	197	...	5	17994	203.8	209	202	...

RADIOSONDE DATA

TABLE IV—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(b) From ascents at 15 hrs. G. M. T.

January 1956

NAGPUR (Surf. Pr. (977 mb.))							NEW DELHI (990 mb.)					POONA (949 mb.)					
No. of obs.	Ht. gpm.	Temperature °A				No. of obs.	Ht. gpm.	Temperature °A				No. of obs.	Ht. gpm.	Temperature °A			
		Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point
29	311	295.1	297	291	283.5	31	210	286.0	291	282	282.0	31	557	295.8	298	292	286.0
29	105	...	...	...	...	31	124	...	...	...	...	31	102	...	...	...	...
29	1020	293.1	297	289	279.6	31	1016	286.6	292	283	276.8	31	1019	294.6	298	291	283.3
29	1508	288.8	293	285	276.9	31	1495	283.7	288	279	270.6	31	1511	291.3	294	289	278.3
29	2019	284.8	287	281	275.2	31	1996	280.1	285	276	267.9	31	2027	287.4	290	285	276.3
29	3124	277.9	281	273	264.9	31	3080	273.4	280	268	263.2	31	3144	280.9	284	278	263.0
29	4369	273.2	279	268	245.3	31	4302	266.6	273	261	...	31	4397	274.7	279	267	251.7
29	5807	265.2	273	261	...	31	5705	257.5	261	251	...	31	5844	266.1	271	261	...
29	7508	254.3	261	248	...	31	7355	247.5	251	241	...	31	7551	255.3	261	251	...
25	9594	241.0	247	235	...	31	9391	236.3	242	228	...	31	9655	241.9	248	238	...
21	10856	231.4	241	225	...	31	10642	229.0	236	221	...	27	10936	233.1	245	227	...
17	12325	221.1	225	214	...	31	12122	223.3	233	218	...	22	12413	221.1	232	217	...
14	13176	214.8	221	209	...	29	12990	218.6	229	212	...	19	13270	215.2	227	209	...
8	14275	207.7	211	204	...	29	13963	214.8	225	209	...	16	14264	210.0	221	201	...
						27	15090	210.6	215	202	...						
						16	16424	207.8	215	198	...						
						9	17771	207.8	213	204	...						
PORT BLAIR (1003 mb.)							TRIVANDRUM (1003 mb.)					VERAVAL (1012 mb.)					
27	81	298.2	300	297	293.9	31	64	299.1	300	298	294.7	29	8	294.3	297	292	289.1
27	102	...	...	...	...	31	88	...	...	...	...	29	111	...	...	...	...
27	1019	291.8	294	290	286.5	31	1008	292.8	296	290	287.4	29	1021	290.1	296	286	280.6
27	1507	289.3	293	287	281.7	31	1499	290.4	295	287	283.4	29	1506	286.9	293	281	278.5
27	2022	288.1	290	283	277.5	30	2016	288.3	292	285	278.7	29	2015	283.9	287	279	274.7
26	3139	282.2	285	278	270.7	29	3142	282.8	287	279	269.6	29	3122	279.4	285	271	264.3
25	4401	275.7	278	268	263.3	29	4408	275.9	279	273	264.7	29	4371	272.6	277	262	...
22	5851	267.7	271	263	...	29	5861	268.1	275	264	...	29	5807	264.2	270	254	...
17	7568	257.7	263	253	...	28	7582	257.9	261	255	...	28	7504	253.5	263	247	...
8	9693	245.0	250	237	...	25	9691	242.8	247	238	...	26	9584	239.8	246	233	...
						25	10962	232.5	240	225	...	22	10848	230.9	237	215	...
						20	12444	221.8	228	217	...	18	12369	222.6	227	219	...
						12	13307	216.3	222	211	...	16	13182	217.5	222	214	...
						12	14271	210.2	215	205	...	14	14239	211.3	217	206	...
						7	15353	204.4	210	200	...	12	15270	206.7	214	199	...
						6	16681	198.6	204	196	...	11	16668	200.9	210	192	...
												6	17975	198.5	207	191	...

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(b) From ascents at 15 hrs. G. M. T.

January 1956

Standard pressure surface mbs.	VISAKHAPATNAM Surf. Pr. (1007 mb.)																
	No. of obs.	Ht. gpm.	Temperature °A														
			Mean	Max.	Min.	Dew point											
Surface	29	48	287.0	301	295	291.8											
1000	29	110	...	...	...	...							
900	29	1023	282.1	295	288	281.8											
850	29	1512	289.2	292	285	278.5											
800	29	2026	286.0	289	282	276.0											
700	29	3140	281.6	285	277	266.6											
600	29	4399	276.0	281	270	256.4											
500	29	5834	268.0	275	264	...											
400	29	7573	257.4	264	254	...											
300	28	9589	244.1	250	236	...											
250	25	10869	234.8	243	229	...											
200	23	12475	224.6	231	219	...											
175	16	13322	218.1	223	212	...											
150	16	14318	211.5	201	208	...											
125	9	15451	206.3	209	205	...											
100	9	16807	200.8	205	196	...											
80	8	18161	199.4	208	195	...											

NOTE.—Number of observations refer to those of dynamic height.

Means are not worked out for temperature and dew point for the 1000 mb. surface and for dew point for standard pressure surfaces with temperature less than 273°A.

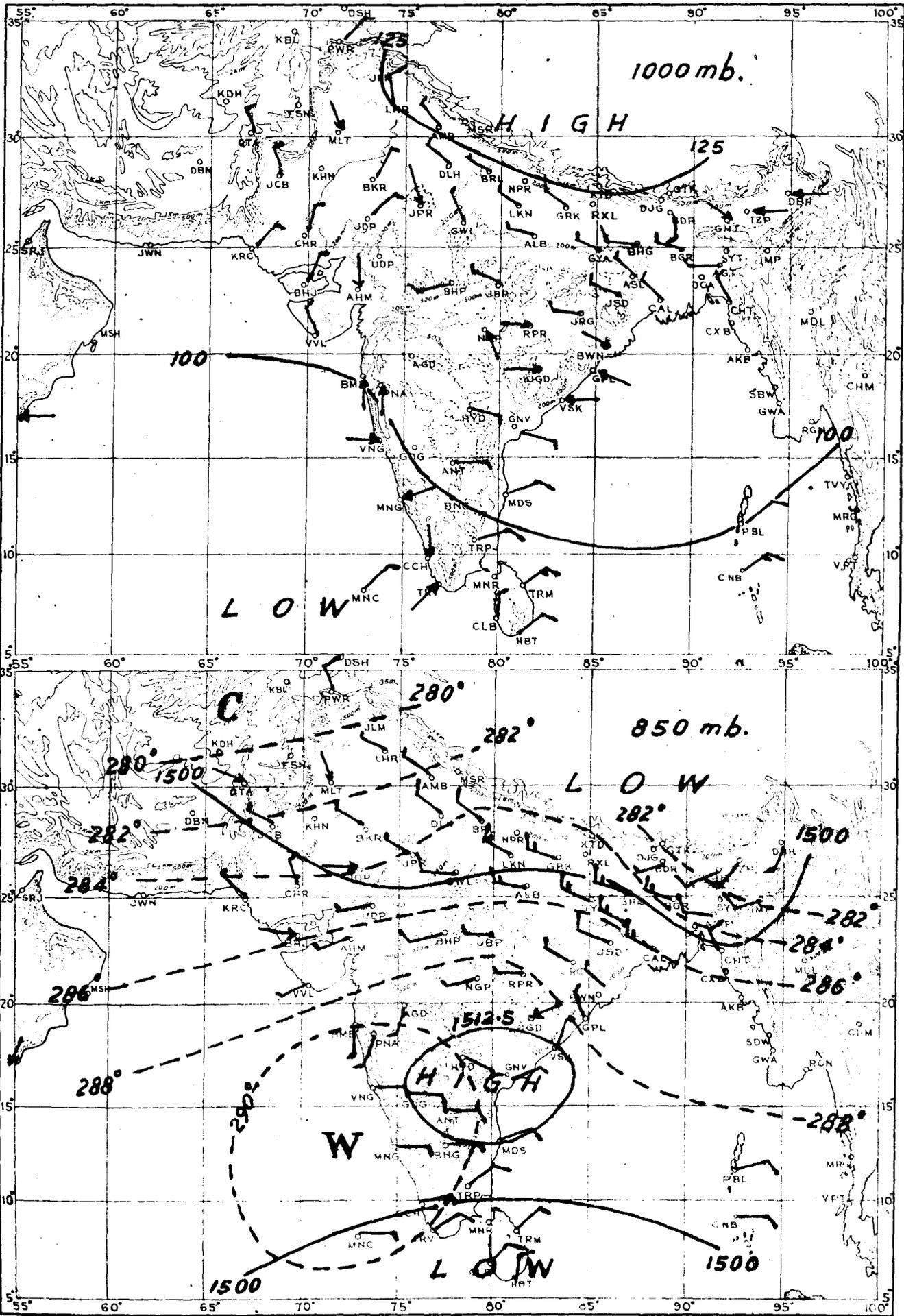
Means are not worked out for less than five observations at standard pressure surfaces.

MONTHLY MEAN CONSTANT PRESSURE CHARTS

I. Met.D.

JANUARY 1956

Plate I



RESULTANT WIND — 5 Knots, — 10 Knots, — 50 Knots.

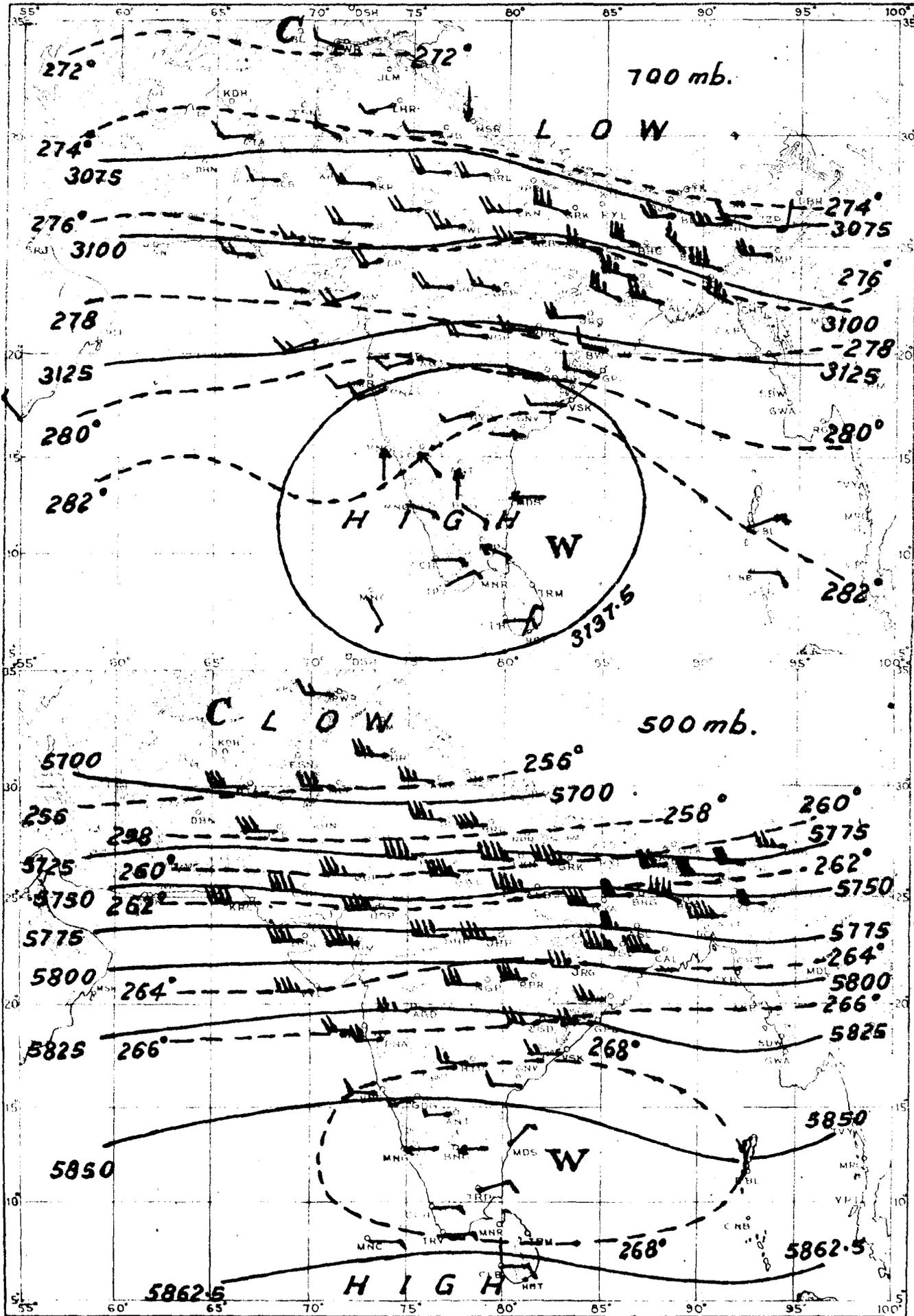
----- Isotherms in degrees absolute. — Contours in geopotential metres.

MONTHLY MEAN CONSTANT PRESSURE CHARTS

I. Met. D.

JANUARY 1956

Plate II



RESULTANT WIND --- 5 Knots, — 10 Knots, — 50 Knots. DD90/312/12/58

Isotherms in degrees absolute.

Contours in geopotential metres.

India. 11111. Nep.
11

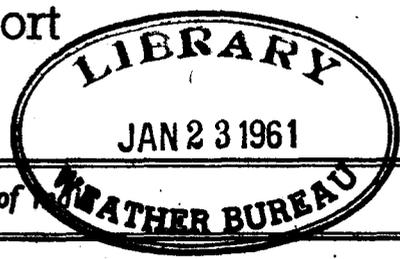


Registered No. B-3097

INDIA WEATHER REVIEW, 1956

Monthly Weather Report

February



Published by authority of the Government of India

Chief features—

The month of February this year was characterised by the formation of a deep depression in the Bay of Bengal. This was a rather unusual feature, as this month is usually free from disturbances in the sea, there being only two other occasions in the past 67 years (1890-1956), one in 1944 and the other in 1947, when a depression or a storm formed in this month. The western disturbances of the month were comparatively weak during the first three weeks but were active during the last week of the month. Rajasthan experienced a moderate to severe cold wave towards the middle of the month.

A feeble western disturbance moved across the northern parts of the country between the 2nd and the 5th of February and was responsible for local rain or snow in the Kumaon hills and east Uttar Pradesh on the 4th. Another weak western disturbance lay over the extreme north of the country on 13th. It moved across the Nepal Himalayas on 16th and across upper Assam on 18th. In association with it, Jammu-Kashmir experienced local or scattered showers between the 13th and 16th. There were also local light showers in the Kumaon hills on 16th and isolated light showers in extreme northeast Assam on 17th and 18th. In the last week of the month, there was a pronounced incursion of moist air over northwest India, under the influence of a low pressure area which moved eastwards from Baluchistan to west Rajasthan between the 24th and 26th. This was quickly followed by another active western disturbance and a deep low with a vigorous upper air circulation lay over the Punjab (P) on the morning of 28th. This caused widespread thundershowers in Jammu and Kashmir and in and near the Punjab hills on the 28th and 29th and in the Kumaon hills on the 29th. Dalhousie and Dharamsala reported 2" of rain each on the 29th, the latter also reporting heavy hail on the previous evening. The "low", however, weakened by the evening of 28th and moved away rapidly eastwards across the Nepal Himalayas by the 29th morning. According to newspaper reports, the entire Himalayan region experienced heavy snowfall and there was interruption in the telegraph and telephone lines in Himachal Pradesh.

The details regarding the movement and activity of each western disturbance are given in the following table.

STATEMENT OF WESTERN DISTURBANCES DURING THE MONTH OF FEBRUARY 1956.

S. No.	Period	Course	Region affected	Nature of precipitation	Period	Remarks
1.	2nd—5th	Across northern parts of the country	Kumaon hills East Uttar Pradesh	Local rain or snow Local rain	4th 4th	
2.	13th—18th	Across extreme north of country Nepal Himalayas-Upper Assam	Jammu and Kashmir Hills of west. Uttar Pradesh, Extreme northeast Assam.	Isolated light showers Local showers Scattered showers Local light showers Isolated light showers	13th 14th 16th 16th 17th, 18th.	
3.	24th—26th	Baluchistan & Punjab (P) Sind-west Rajasthan	Jammu-Kashmir Punjab hills Kumaon hills	W despread snow W despread snow Widespread snow with heavy hail	28th, 29th 28th, 29 h 29th	3 and 4 merged into one and lay as a deep "low" over the Punjab (P) on 28th.
4.	26th—29th	Punjab (P), Punjab (I) Nepal H.imalayas				

In association with the first disturbance of the month, a trough of low pressure appeared over the central parts of the country and a pronounced incursion of moist air took place over northeast India during the first four days of the month when local or fairly widespread rain occurred in Chota Nagpur and Gangetic West Bengal. Scattered or local thundershowers were also reported from east Madhya Pradesh and the rest of northeast India during this period.

1-4 D.D.G. Obs. Poona/58
78 or 10s.6d.

An easterly wave moving across the Ceylon-Comorin area caused fairly widespread thundershowers in Travancore-Cochin on 8th February, Fort Cochin reporting 3" of rain. With the arrival of fresh easterly wave, conditions became unsettled in the southeast Bay of Bengal on 8th February and on the next morning, a depression formed with its centre near Lat. $7\frac{1}{2}^{\circ}\text{N}$, Long. 91°E . It became deep during the course of the day and moving in a northnorthwesterly direction, it was centered near Lat. 10°N , Long. $90\frac{1}{2}^{\circ}\text{E}$ on the morning of 10th. Thereafter, it recurved to the northeast and gradually weakened. On the morning of the 11th, it lay as a shallow depression with the central region about 130 miles to the northeast of Port Blair. It weakened further during the course of the next 24 hours and moved away northeastwards into lower Burma as a low pressure wave. In association with this depression, widespread and locally heavy rain occurred in the Bay Islands on the 9th and 10th. Nan Cowrie reported 4" of rain on the 9th and Port Blair and Car Nicobar 3" each on the 10th. In association with the movement of one more easterly wave, scattered light showers occurred in south Tamilnad on the 25th and 26th.

A moderate cold wave prevailed over the region extending from east Rajasthan to coastal Andhradesa and Orissa between 4th and 12th February, some stations in southeast Madhya Pradesh and neighbourhood recording minimum temperatures as low as $11^{\circ}\text{--}13^{\circ}\text{F}$ below normal on the 10th and 11th. A cold wave again affected Rajasthan on the 17th when Bikaner recorded 33°F (16°F below normal). Night temperatures were also appreciably below normal in the south Punjab (I), west Uttar Pradesh, north Gujarat and north Saurashtra on this day. The cold spell extended further east and south by the 18th, when night temperatures were markedly below normal over Rajasthan, north Madhya Bharat, Vindhya Pradesh, Gujarat and Saurashtra-Kutch and appreciably below normal in Chota Nagpur, Uttar Pradesh and north Madhya Pradesh. After the 18th February, the night temperatures started gradually rising over the country and by the 26th, they were appreciably above normal in most parts of the country, being markedly so in Gujarat, Madhya Bharat and west Madhya Pradesh. However, in the wake of an active western disturbance, there was again a large fall of night temperatures at many places in northwest India on the 29th when they were below normal in west Rajasthan, north Saurashtra-Kutch and north Gujarat and generally above normal elsewhere over the country, being markedly so at many places in Uttar Pradesh and the central parts of the country.

The total rainfall for the month was in large excess in the Bay Islands, Orissa, Deccan(Desh) and Travancore-Cochin and in moderate excess in Mysore. It was normal in West Bengal, in slight defect in Chota Nagpur and coastal Andhradesa, in moderate defect in east Uttar Pradesh, Jammu-Kashmir and east Rajasthan and in large defect over the rest of the country, except in the Konkan and Malabar-south Kanara where there was no rain.

The mean maximum temperature was above normal in Assam, west Uttar Pradesh, the Punjab (I), Jammu-Kashmir, west Rajasthan and Gujarat, below normal in Tamilnad and Mysore and normal over the rest of the country.

The mean minimum temperature was below normal in Orissa, Chota Nagpur, east Rajasthan, Vindhya Pradesh, Saurashtra-Kutch, coastal Andhradesa and Rayalaseema and normal over the rest of the country.

The mean relative humidity in the morning was normal in the Bay Islands, Orissa, east Rajasthan, Vindhya Pradesh, Saurashtra-Kutch, the Konkan, coastal Andhradesa, Malabar-south Kanara and Travancore-Cochin and in defect elsewhere.

The mean cloud amount in the morning was in excess in the Deccan(Desh), north Hyderabad and Travancore-Cochin, in defect in northeast India outside Orissa, in Uttar Pradesh, northwest India, Vindhya Pradesh, Gujarat and Malabar-south Kanara and normal elsewhere.

Table I contains the divisional and sub-divisional means of rainfall, temperature, humidity and cloud amount for the 13 chief political divisions and the 28 sub-divisions. The stations whose observations are used for preparing these means are given in the subsequent tables.

The highest maximum temperature given for any station in the accompanying tables is that recorded within the 24 hours ending at 0830 hrs. IST of the date noted in the succeeding column; similarly the heaviest fall in 24 hours for any station denotes the amount recorded during the 24 hours ending at 0830 hrs. IST of the date given in the succeeding column.

POONA 5,

Dated the 9th April 1957.

K. DAS,

for Director General of Observatories.

Errata to Monthly Weather Report for February 1956

Page No.	Station	Hour	Column	For	Read
<u>Table I</u>					
53	Punjab (I) (Including PEPSU and Delhi)	-	1	unjab (I)(.....)	Punjab (I)(....)
	Uttar Pradesh, East.	.	2	-0.3-	-0.32
	Punjab (I) (Including PEPSU and Delhi)	-	5	6.6	46.6
	Vindhya Pradesh.	-	2	0.38	0.30
<u>Table II</u>					
54	Port Blair	-	3	Blank	0
	Dibrugarh	-	1	ibrugarh	Dibrugarh
56	Jammu and Kashmir	-	1	Jammu and Kashmi	Jammu and Kashmir
	Skardu	-	1	Skaardu	Skardu
	Umaria	-	3	+	+0.7
	Raigarh	-	10	0.4	0.64
	Ambikapur	-	10	1.5	1.25
	Kanker	-	11	0.5	0.75
	Buldhana	-	11	Blank	0
58	Cuddalore	-	8	54	64
	Kozhikode	-	3	+	+1.0
59	Nainital	-	9	25	2.5
	Simla	-	17	Blank	2.8
	Thangu	-	1	Thangw	Thangu
	Hazaribagh	-	17	.2	8.2
	Punasa	-	11	Blank	0
<u>Table III</u>					
61	Port Blair	1730	13	4.	4.3
	"	"	17	Blank	0
	Digboi	0830	17	Blank	0
	Dibrugarh (Mohanbari Aerodrome)	0230	5	999.0	999.2
	"	1730	13	2.	2.8
	Golaghat	0830	3	"	--
	Lumding	1730	2	30	1730
	Majbat	0830	2	Mabjat	Majbat
62	Gauhati (Kaiku-chi Aerodrome)	-	1	Gauhati (Kaiku-chi Aerodrome)	Gauhati (Kaiku-chi Aerodrome)
	Goalpara	0830	11	0	70
	Silchar	0830	3	90	96
	Haflong	1730	5	93.5	933.5
	"	1730	13	Blank	2.6
	Dum Dum	0530	7	.1	57.1
	"	1730	8	Not clear	64.3
	Barrackpore	1130	21	Blank	1
	Asansol	1130	2	113	1130
	"	1730	2	173	1730
	"	2330	2	233	2330
	Suri	1730	4	1011.	1011.0

Page No.	Station	Hour	Column	For	Read
63	Bagdogra	1730	5	4.5	994.5
	Koraput	0830	2	830	0830
	Titilagarh	0830	5	9.8	989.8
64	Daltonganj	1730	7	8.7	78.7
	Purnea	1730	7	Not clear	73.4
	Motihari	0830	13	07	0.7
65	U.P.East - Contd.	-	1	U.P.East - Contd.	U.P.East - Contd.
	Banaras			(Bamraul)	(Banaras)
	Allahabad (Bam- rauli)	-	1	Allahabad (Bamruli)	Allahabad (Bamraul)
66	Punjab (I) New Delhi	0830	14	-1.	-1.3
	Srinagar	0830	9	29.2	29.7
	Sri Ganganagar	0830	2	0820	0830
67	Bikaner	-	1	Bicaner	Bikaner
	Sikar	0830	23	Not clear	3
	Kotah	0830	14	0.6	-0.6
68	Indore	1730	16	Blank	0
	Sutna	1730	22	Blank	0
	Gondia	0830	20	13	3
	Pendra	1730	25	Not clear	1
70	Dohad	0830	24	2	1
	Porbander	0830	25	10	0
	"	"	26	1	10
	"	"	27	0	1
	Jamnagar	0830	22	0	6
	"	1730	24	6	0
	"	"	25	4	6
	"	"	26	0	4
	Veraval	2330	20	Blank	6
	"	"	21	Blank	0
71	Karwar	0830	4	1012.0	1012.2
	"	"	5	1011.5	1011.7
	"	"	6	-1.5	-1.3
	"	1730	4	1008.0	1008.2
	"	"	5	1007.6	1007.8
	Sholapur	2330	9	37.	37.3
76	Hazaribagh	1130	25	15	5
	Hirakud	0830	5	966.4	996.4
	Between Panchet Hills and Baramul	-	1	-	Mahanadi Catch- ment.

TABLE I.—DIVISIONAL AND SUB-DIVISIONAL MEANS—FEBRUARY 1950.

Division	Rainfall (inches).	Percent age of normal	Mean maximum temperature °F	Mean minimum temperature °F	Relative humidity %		Cloud		Division	Rainfall (inches).	Percent age of normal	Mean maximum temperature °F	Mean minimum temperature °F	Relative humidity %		Cloud	
					0830 hrs. I.S.T.	1730 hrs. I.S.T.	0830 hrs. I.S.T.	1730 hrs. I.S.T.						0830 hrs. I.S.T.	1730 hrs. I.S.T.	0830 hrs. I.S.T.	1730 hrs. I.S.T.
					1	2	3	4						5	6	7	8	9	1	2	3	4	5	6	7	8	9
am (including unipur & Trirra).	0.18 -1.27	12	80.1 +4.4	54.0 -0.1	72 -10	55	1.5 -2.1	2.0	8. Madhya Bharat & Vindhy Pradesh	0.16 -0.25	39	81.9 +0.8	50.1 -1.5	51 -5	23	1.5 -0.2	1.8
est Bengal	1.01 -0.05	95	81.0 -0.8	57.0 -0.9	65 -7	47	1.1 -0.9	1.1	9. Madhya Pradesh	0.12 -0.60	17	86.6 +0.5	57.3 -0.2	48 -7	25	1.6 0	1.9
issa	2.26 +1.19	211	81.0 -1.8	60.9 -2.1	70 -1	51	1.7 -0.3	1.4	10. Bombay (including Saurashtra & Kutch)	0.06 -0.02	75	87.5 +0.6	60.0 -0.6	54 -4	35	1.4 +0.2	1.4
ar	0.65 -0.39	63	80.2 +0.8	52.4 -1.8	60 -7	41	1.3 -0.6	1.1	11. Hyderabad	0.03 -0.31	8	88.9 -0.9	62.5 -1.5	44 -11	21	1.6 +0.2	1.8
ar Pradesh	0.39 -0.46	46	78.7 +1.6	49.8 -0.6	62 -7	39	1.1 -0.9	1.5	12. Madras (including Travancore-Cochin).	0.30 -0.21	59	87.1 -1.8	68.4 -1.5	71 -6	52	2.2 -0.2	2.0
ajab (I) (Including Pepsu and Jhansi)	0.08 -1.13	7	79.2 +5.1	46.6 -1.3	61 -8	30	1.3 -1.2	1.7	13. Mysore	0.23 +0.05	128	85.9 -2.3	62.4 -0.3	58 -7	28	2.0 +0.1	2.1
asthan	0.06 -0.26	19	81.6 +2.5	49.2 -1.9	44 -11	18	1.3 -0.7	1.3	Mean of India	0.32 -0.29	52	83.9 +0.7	56.6 -1.1	57 -7	34	1.5 -0.4	1.6
Sub-division									Sub-division (Contd.)								
Andhra Pradesh	2.78 +1.67	250	85.5 0	70.3 -0.2	73 +2	77	2.9 0	4.3	15. Madhya Pradesh, East	0.25 -0.77	25	85.2 -0.2	57.0 -1.1	56 -6	29	1.7 0	1.7
am (Including unipur & Trirra)	0.18 -1.27	12	80.1 +4.4	54.0 -0.1	72 -10	55	1.5 -2.1	2.0	16. Madhya Pradesh, West	0.02 -0.48	4	87.6 +1.0	57.5 +0.5	42 -7	21	1.5 0	2.0
est Bengal	1.01 -0.05	95	81.0 -0.8	57.0 -0.9	65 -7	47	1.1 -0.9	1.1	17. Gujarat	0.04 -0.06	40	90.3 +2.2	55.7 -1.4	49 -9	21	0.9 -0.3	1.0
issa	2.26 +1.19	211	81.0 -1.8	60.9 -2.1	70 -1	51	1.7 -0.3	1.4	18. Saurashtra and Kutch	0.01 -0.11	8	84.7 +0.7	54.7 -2.4	58 +1	35	1.2 -0.1	0.8
ota Nagpur	1.36 -0.19	88	80.4 +0.2	52.9 -2.4	58 -8	39	1.6 -0.4	1.4	19. Konkan	0 -0.03	0	85.2 +1.2	66.8 +0.3	65 -3	61	1.3 +0.1	1.2
har	0.25 -0.51	33	80.1 +1.3	52.0 -1.3	62 -7	42	1.0 -0.8	0.9	20. Deccan (Deah)	0.17 +0.07	170	89.5 -0.8	59.5 0	45 -6	23	1.9 +1.0	2.3
ar Pradesh, West	0.41 -0.3	56	79.3 +1.0	50.7 -0.5	62 -8	42	1.1 -0.7	1.3	21. Hyderabad, North	0.01 -0.36	3	88.6 -0.6	61.3 -1.0	38 -11	20	1.7 +0.4	2.2
ar Pradesh, East	0.36 -0.67	35	77.9 +2.5	48.6 -0.8	61 -6	37	1.0 -1.2	1.9	22. Hyderabad, South	0.05 -0.33	13	89.1 -1.2	63.4 -1.8	49 -11	23	1.5 0	1.5
ajab (I) (Including Pepsu and Jhansi)	0.08 -1.13	7	79.2 +5.1	46.6 -1.3	61 -8	30	1.3 -1.2	1.7	23. Coastal Andhra	0.40 -0.13	75	86.2 -1.9	65.3 -3.5	73 -4	56	2.3 -0.1	1.9
ammu & Kashmir	2.76 -1.62	63	52.1 +3.5	29.4 -0.9	61 -8	47	3.9 -1.0	4.7	24. Rayalseema	0.01 -0.22	4	92.0 -1.9	65.7 -2.1	53 -9	30	1.1 -0.1	1.4
asthan, West	0.01 -0.41	2	81.9 +3.2	49.2 -1.1	39 -22	15	1.5 -1.0	1.3	25. Tamilnad	0.01 -0.60	2	85.2 -2.4	68.5 -0.9	72 -7	49	2.3 -0.4	2.2
asthan East (Including Ajmer)	0.10 -0.10	50	81.4 +1.9	49.3 -2.6	48 -2	20	1.2 -0.5	1.4	26. Malabar and South Kanara	0 -0.13	0	88.6 +0.3	72.5 -0.2	73 -3	66	1.1 -0.8	0.7
adhy Bharat	0.08 -0.11	42	82.3 +0.5	50.9 -0.7	43 -7	21	1.6 +0.1	2.0	27. Mysore	0.23 +0.05	128	85.9 -2.3	62.4 -0.3	58 -7	28	2.0 +0.1	2.1
adhy Pradesh	0.38 -0.48	38	81.4 +1.3	48.8 -2.8	62 0	27	1.3 -0.7	1.5	28. Travancore-Cochin	2.22 +1.44	285	87.9 -0.1	75.2 +0.9	71 -4	62	3.4 +1.5	3.3

NOTE.—The entries in the second line for each division and sub-division indicate departures from normal.

TABLE II—SUMMARY OF OBSERVATIONS OF TEMPERATURE, RAINFALL AND WEATHER—FEBRUARY 1956.

Division and station.	Air temperature in °F.								Rainfall in inches.					No. of rainy days (0.10" or more)		Wind speed miles per hour.			Weather phenomena—No. of days w									
	Mean maximum.	Departure from normal.	Highest.	Date.	Mean minimum.	Departure from normal.	Lowest.	Date.	Total fall during 0830-1730 hours.	Total fall in 24 hours.	Departure from normal.	Heaviest fall in 24 hours.	Date.	Total in the month.	Departure from normal.	Mean between 0830-1730 hours.	Mean 24 hours.	Departure from normal.	Precipitation (0.1" or more).	Snow or sleet.	Hail.	Thunder heard.	Fog.	Dust storm.	Ground frost.	Gale.	Squall.	
																												2
HYDROMETEOROLOGICAL OBSERVATORIES—contd.																												
Damodar Catchment—Contd.																												
Berh	77.8	..	89	29	52.7	..	45	11,19	0.50	0.62	..	0.55	3	1	..	5.6	3.2	..	3	0	0	1	2	0	0	0	0	0
Rangarh.	81.7	..	94	29	48.2	..	41	9,19	0.35	1.76	..	0.95	3	3	..	3.9	1.9	..	4	0	0	1	0	0	0	0	0	
Dhanbad.	79.4	..	91	28	56.3	..	48	7	0.20	1.03	..	0.47	3	3	..	5.5	4.4	..	4	0	0	1	4	0	0	0	0	
Panchet Hills	81.0	..	94	29	53.9	..	48	7,8,9	0.50	1.13	..	0.56	3	3	..	6.5	4.2	..	4	0	0	1	0	0	0	0	0	
Asansol	..	..	..	..	..	..	..	..	..	1.12	..	0.59	4	3	..	..	..	..	..	4	..	..	..	..	..	..	..
Dhanwar	..	..	..	..	..	..	..	..	..	0	..	0	..	0	..	..	..	..	..	0	..	..	..	..	..	..	..
Dumri	..	..	..	..	..	..	..	..	..	1.09	..	0.40	3	5	..	..	..	..	..	5	..	..	..	..	..	..	..
Bishungarh	..	..	..	..	..	..	..	..	..	0.77	..	0.38	3	2	..	..	..	..	..	4	..	..	..	..	..	..	..
Falgan (Girdih)	..	..	..	..	..	..	..	..	..	0.57	..	0.38	3	1	..	..	..	..	..	5	..	..	..	..	..	..	..
Chandwa	..	..	..	..	..	..	..	..	..	0.54	..	0.21	3	3	..	..	..	..	..	4	..	..	..	..	..	..	..
Pupunki (Chas Road)	..	..	..	..	..	..	..	..	..	1.32	..	0.45	3	4	..	..	..	..	..	5	..	..	..	..	..	..	..
Mahamedli Catchment																												
Baramul	85.1	..	96	29	54.4	..	46	9,11,12	1.33	2.84	..	4.50	4	3	..	2.0	1.0	..	4	0	0	0	0	0	0	0	0	
Hirakud	86.5	..	97	28,29	59.3	..	50	11	0.32	1.86	..	1.42	3	3	..	1.4	1.4	..	3	0	0	1	0	0	0	0	0	
Barkachhar*	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sonepur	85.8	..	95	27,28	59.0	..	49	11	..	1.25	..	0.52	4	4	..	..	1.1	..	4	0	0	0	0	0	0	0	0
Ginabhar	85.0	..	93	29	51.1	..	42	11	..	0.88	..	0.68	3	2	..	..	..	..	2	0	..	0	0	0	0	0	0
Narbada Catchment																												
Punasa	90.1	..	100	27	54.4	..	44	4	0	0	..	0	..	0	..	3.6	3.0	..	0	0	0	0	0	0	0	0	0	
Bagra Tawa	87.1	..	99	28	51.6	..	40	6	0	0	..	0	..	0	..	3.9	2.5	..	0	0	0	0	0	0	0	0	0	
Thikri	90.8	..	100	25,27	56.7	..	47	5	..	0	..	0	..	0	..	..	..	..	0	0	0	0	0	0	0	0	0
Tapti Catchment																												
Nandurbar	91.8	..	101	27	63.6	..	57	5	..	0	..	0	..	0	..	..	..	..	0	..	..	..	..	..	..	..	..
Sabarmati Catchment																												
Jhadol	81.3	..	93	27	41.9	..	33	18	..	0	..	0	..	0	..	..	..	..	0	0	0	0	0	0	0	0	0
Dharoi	87.2	..	99	27	55.3	..	47	4	0	0	..	0	..	0	..	..	..	..	0	..	..	..	..	..	..	..	..

*Temporarily closed.

TABLE III—SUMMARY OF OBSERVATIONS AT FIXED HOURS—FEBRUARY 1956.

Table with 27 columns: Division and station, Hour of observation I.S.T., Height of barometer cistern above mean sea level in feet, Mean pressure in millibars (At mean sea level, At station level, Departure from normal), Mean temperature in °F. (Dry bulb, Wet bulb, Dew point), Vapour pressure in mba., Relative humidity %, Departure from normal, Cloud amount (Oktas) (Mean amount, Departure from normal), Mean wind speed, miles per hour (39 or more, 19 to 38, 1 to 12), and No. of observations (Wind direction: N, NE, E, SE, S, SW, W, NW, Calm).

Division and station	Hour of observation I.S.T.	Height of barometer column above mean sea level in feet.	Mean pressure in millibars.		Mean temperature in °F.			Vapour pressure in mbs.	Relative humidity %	Departure from normal.	Cloud amount (Okta).		Mean wind speed, miles per hour.	Wind Speed (m.p.h.)			No. of observations								Calim	
			At mean sea or nearest 5. km. level.	At station level.	Departure from normal.	Dry bulb.	Wet bulb.				Dew point.	Mean amount.		Departure from normal.	39 or more.	15 to 38.	1 to 12.	Wind direction								
																		N	NE	E	SE	S	SW	W		NW
<div style="display: flex; justify-content: space-between; font-size: 0.8em; margin-top: 10px;"> (R) Register not received. † Observatory closed on 29th February 1956. * Observations for 28 days. ‡ Temporarily closed. </div>																										

MONTHLY MEANS OF UPPER WINDS FEBRUARY 1956

During the month, observations of velocity and direction of upper winds were made at 51 stations in India. Out of these, at 43 stations all the observations were taken by means of pilot balloons and at 8 stations some observations were made by means of pilot balloons while the other observations by the radiowind method. Particulars of the stations, their co-ordinates and the approximate times of the regular pilot balloon and rawin ascents at each station are given in the table below. All radiowind ascents have been indicated by means of an asterisk (*) against the scheduled hours.

Data from ascents made at the scheduled time or within two hours on either side of the scheduled times of regular observations have been used for averaging.

Data upto 9.0 km. a.m.s.l. are given under Table IV and data above 9.0 km. a.m.s.l. under Table V.

In Tables IV and V :

n - represents the number of observations,

V - represents the mean wind speed in knots irrespective of direction,

v - represents the resultant mean velocity in knots,

D - represents the direction of the resultant mean wind in degrees East of North.

Mean and resultant winds are given in this publication for the following heights :—

Surface, 0.15 km.a.g., 0.3, 0.6, 0.9, 1.5, 2.1, 3.0, 4.5, 5.4, 6.0, 7.2, 9.0, 10.5, 12.0, 14.1, 16.2, 18.0, 20.0, 23.0, 26.0, 30.0 and 35.0 km.a.m.s.l. Of these the levels 1.5, 3.0, 5.4, 7.2, 9.0, 12.0, 14.1 and 16.2 km.a.m.s.l. are considered as the best approximations to the standard pressure levels 850, 700, 500, 400, 300, 200, 150 and 100 mb. respectively.

PARTICULARS OF PILOT BALLOON AND RAWIN STATIONS IN INDIA

Station	Lat. N.	Long E.	Height of Anemometer head a.m.s.l. in metres.	Date of opening	Approximate times of flight (IST).		
Agartala	23°53'	91°15'	47	28th November, 1951	0130	0730	1430
Ahmedabad	23°04'	72°38'	61	19th May, 1928	0130	0730	1430
Amausi	26°45'	80°55'	126	20th November, 1950	0130	0730	1430
Ambala	30°23'	76°46'	282	1st April, 1941.	0130	0730	1430
Anantapur	14°41'	77°37'	364	12th February, 1946		0730	1430
Asansol	23°41'	86°59'	126	29th May, 1942	0130	0730	1430
Baghdogra	26°38'	88°19'	138	7th June, 1953.		0730	1430
Bairagarh	23°17'	77°21'	524	26th February, 1943	0130	0730	1430
Bamrauli	25°27'	81°44'	103	28th February, 1930	0130	0830*	1430 2030†
Bangalore	12°58'	77°35'	936	19th May, 1915	0130	0730	1430
Barcilly	28°22'	79°24'	180	12th January, 1943		0730	1430
Begumpet	17°27'	78°28'	542	1st September, 1929	0130	0730	1430
Bhagalpur	25°14'	86°57'	60	19th May, 1950		0730	1430
Bhubaneswar	20°15'	85°50'	45	5th December, 1942	0130	0730	1430
Bhuj	23°15'	69°48'	111	14th September, 1937.	0130	0730	1430
Bikaner	28°00'	73°18'	228	18th October, 1946	0130	0730	1430
Chikalathana	19°51'	75°24'	583	7th October, 1951	0130	0730	1430
Cochin †	09°58'	76°14'	3	16th March, 1942..	0130	0730	1430
Dum Dum	22°39'	88°27'	11	14th May, 1921	0130	0830*	1430 2030†
Gadag	15°25'	75°38'	650	3rd May, 1948.	0130	0730	1430
Gauhati	26°05'	91°43'	55	12th March, 1955	0130	0830*	1430 2030†
Gaya	24°45'	84°57'	113	19th March, 1937.	0130	0730	1430
Gopalpur	19°16'	84°53'	24	15th February, 1946	0130	0730	1430
Gorakhpur	26°45'	83°22'	83	5th January, 1943		0730	1430
Gwalior	26°14'	78°15'	211	7th May, 1938	0130	0730	1430
Imphal	24°51'	93°58'	798	8th March, 1952		0730	1430
Jabalpur	23°10'	79°57'	402	30th July, 1928	0130	0730	1430
Jagdalpur	19°05'	82°02'	561	25th March, 1948	0130	0730	1430
Jaipur	26°49'	75°48'	387	6th June, 1953.		0730	1430
Jamahedpur	22°49'	86°11'	144	23rd July, 1942		0730	1430
Jharsuguda	21°55'	84°05'	234	1st May, 1944	0130	0730	1430
Jodhpur	26°18'	73°01'	228	15th October, 1934	0130	0730	1430
Madras	13°00'	80°11'	29	8th April, 1926	0130	0830*	1430 2030†
Mangalore	12°52'	74°51'	40	4th June, 1928	0130	0730	1430
Masulipatam	16°11'	81°08'	9	8th April, 1942	0130	0730	1430
Minicoy	08°18'	73°00'	14	14th April, 1941	0130	0730	1430
Mohanbari	27°29'	95°01'	110	1st June, 1948	0130	0730.	1430
Mussoorie	30°27'	78°05'	2050	3rd November, 1955		0730	1430
Nagpur	21°09'	79°07'	316	23rd April, 1943	0130	0830*	1430 2030†
New Delhi	28°35'	77°12'	227	20th October, 1936	0130	0830*	1430 2030†
Poona	18°32'	73°51'	560	5th January, 1925	0130	0730	1430 2030†
Port Blair	11°40'	92°43'	92	29th October, 1945	0130	0730	1430
Raipur	21°14'	81°39'	308	15th July, 1944	0130	0730	1430
Santacruz	19°05'	72°53'	12	14th May, 1933	0130	0830*	1430 2030†
Tezpur	26°37'	92°47'	78	12th August, 1932	0130	0730	1430
Tiruchirapalli	10°46'	78°43'	95	22nd June, 1936	0130	0730	1430
Trivandrum	08°29'	76°57'	72	8th December, 1928	0130	0730	1430
Udaipur	24°35'	73°42'	587	24th June, 1947	0130	0730	1430
Vengurla	15°52'	73°38'	8	22nd November, 1941	0130	0730	1430
Veraval	20°54'	70°22'	16	13th October, 1941	0130	0730	1430
Visakhapatnam	17°43'	83°14'	9	24th September, 1928	0130	0730	1430

* Radiowind ascents.

† Naval Meteorological office.

TABLE IV.—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level.

February 1956

Station	AGARTALA												AHMEDABAD											
	0130				0730				1430				0130				0730				1430			
	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	29	1.8	0.8	150	29	2.1	0.5	207	29	3.8	3.3	296	29	5.0	4.3	355	29	4.4	3.9	033	29	4.4	1.8	360
15 a.g.	29	6.8	3.1	320	29	5.7	1.9	340	28	4.9	3.9	292	29	16.9	13.3	005	29	16.9	14.0	053	29	5.5	2.4	062
3 a.m.s.l.	29	6.9	4.0	312	29	7.1	3.3	340	28	5.4	4.3	290	29	15.3	11.7	005	29	19.4	16.0	059	29	5.6	2.4	068
5 "	29	6.9	5.5	313	28	6.2	2.6	353	28	4.7	3.8	285	29	10.9	7.6	010	29	13.0	9.7	062	29	5.5	1.6	065
3 "	29	6.8	5.6	298	28	5.0	2.3	340	28	5.1	3.5	292	29	7.6	4.3	011	29	9.0	4.6	037	29	5.9	2.0	352
5 "	29	9.7	8.5	282	28	7.8	6.4	283	28	7.0	5.4	275	29	8.0	2.3	223	29	9.0	4.1	268	29	8.0	3.9	265
1 "	29	14.8	13.2	281	28	13.7	12.3	287	28	11.6	10.4	275	29	10.6	7.7	237	28	12.5	8.1	258	29	12.7	8.6	248
0 "	20	19.4	16.6	275	25	21.8	20.0	282	28	21.4	20.0	282	26	14.8	10.0	240	28	15.9	11.1	250	29	16.8	13.6	250
5 "					14	28.0	27.1	267	25	25.8	30.4	275					21	21.1	17.5	274	28	25.5	21.6	273
4 "					4	37.8	36.3	259	21	28.6	37.0	271					15	24.6	21.6	271	28	32.5	29.5	271
0 "					3	43.8	41.7	252	19	42.3	40.0	270					10	25.3	22.2	285	28	36.8	33.4	272
2 "									5	49.8	48.4	273					2	33.5	26.7	304	18	38.2	33.1	270
0 "									2	47.5	46.8	285									9	58.1	51.7	260

Station	AMAUSI												AMBALA											
	0130				0730				1430				0130				0730				1430			
	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	29	4.1	3.0	296	29	3.7	2.8	290	29	8.7	7.4	308	29	5.4	3.7	324	29	3.9	1.3	335	29	7.3	4.9	296
15 a.g.	29	13.8	11.4	304	29	13.0	9.9	306	29	9.5	8.8	298	29	18.2	14.8	335	29	15.0	10.6	339	29	12.5	8.9	294
3 a.m.s.l.	29	13.7	11.4	303	29	13.1	10.1	312	29	9.5	8.5	298	29	8.8	6.7	330	29	7.4	5.3	339	29	9.1	6.6	291
6 "	29	13.8	11.2	305	29	12.7	10.2	303	29	9.2	8.5	295	29	17.3	14.1	333	29	15.7	8.4	320	29	12.5	8.4	301
9 "	29	14.1	11.9	308	29	12.8	11.1	298	29	10.7	10.3	295	29	15.7	12.6	327	29	15.5	12.4	330	29	12.4	8.2	307
5 "	29	16.0	14.7	290	29	16.9	10.2	296	29	16.2	15.1	301	29	11.9	9.1	313	29	13.9	10.6	319	29	13.1	9.1	309
1 "	26	17.2	16.2	283	29	18.0	13.9	300	29	18.3	17.8	293	29	12.9	10.4	302	29	13.1	9.1	317	29	13.6	6.5	313
0 "	18	16.0	15.3	385	27	19.0	17.3	285	28	20.6	15.6	286	28	13.5	10.0	287	28	12.1	7.9	304	29	12.6	7.2	302
5 "					13	23.3	22.1	273	26	29.5	27.8	285	6	12.0	10.8	269	17	14.6	12.4	279	26	19.1	15.3	283
4 "					4	24.3	20.3	273	21	32.2	30.3	283	4	14.7	13.0	228	15	20.9	17.2	286	25	24.4	21.5	277
0 "					3	36.7	31.3	266	15	34.3	31.6	275	4	17.7	15.7	232	8	16.4	14.7	276	24	29.5	25.6	276
2 "									7	44.3	42.6	265	1	60.0	60.0	170	1	56.0	56.0	270	21	33.7	30.0	273
0 "									1	39.0	39.0	310									13	47.2	43.6	271

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

February 1956

Station	ANANTAPUR								ASANSOL												BAGHDOGRA							
	0730				1430				0130				0730				1430				0730							
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D				
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface.	29	3.8	2.4	166	29	7.0	6.1	083	29	3.3	2.8	315	29	3.4	2.5	298	29	4.0	3.4	327	29	1.0	0.9	030				
0.15 a. g.	29	8.6	7.3	137	29	10.4	9.3	082	28	10.0	8.1	334	28	10.2	7.3	320	28	8.6	7.2	334	29	6.0	4.5	046				
0.3 a.m.s.l.									28	10.3	8.3	334	28	10.6	7.8	325	28	8.8	7.2	333	29	6.0	4.6	060				
0.6 "	29	10.5	9.3	134	29	10.7	9.3	084	28	12.6	10.3	322	26	13.1	11.4	331	28	9.5	7.9	327	29	6.3	5.3	080				
0.9 "	29	14.0	12.1	121	29	10.7	9.4	085	25	14.7	14.0	308	26	14.1	12.6	320	26	10.2	9.5	317	29	5.9	4.7	094				
1.5 "	29	14.0	11.3	090	29	9.4	7.8	082	24	18.1	17.1	295	25	15.8	14.8	306	26	14.9	14.4	308	29	7.1	3.7	089				
2.1 "	29	12.3	9.2	055	29	11.3	8.9	080	20	20.0	19.1	295	23	20.3	17.9	305	26	22.3	21.5	308	29	8.3	1.6	067				
3.0 "	29	9.3	3.9	035	29	8.8	3.5	050	10	18.6	17.1	300	7	21.9	20.8	309	25	23.6	23.1	304	23	12.0	10.9	287				
4.5 "	28	12.9	6.0	268	26	11.3	4.8	283					4	21.5	19.9	277	21	27.7	26.1	286	13	27.0	25.3	290				
5.4 "	26	15.0	7.2	260	26	13.8	7.9	265					2	34.5	31.9	297	11	29.9	23.3	286	8	26.5	22.2	276				
6.0 "	25	15.0	9.0	248	24	15.6	10.1	256					1	40.0	40.0	270	8	30.9	29.4	281	6	35.0	32.7	268				
7.2 "	19	16.4	12.9	235	15	21.3	16.0	256									2	26.0	25.9	249	1	23.0	22.8	310				
9.0 "	9	20.4	16.3	248	6	29.3	27.5	245																				

Station	BAGHDOGRA				BAIRAGARH								BAMRAULI															
	1430				0130				0730				1430				0130				0830							
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface.	29	3.6	2.2	216	29	3.5	2.7	053	29	3.5	2.8	063	29	3.2	1.5	281	29	2.2	1.4	274	25	3.5	2.5	270				
0.15 a. g.	29	6.0	3.5	210	29	15.1	10.0	065	29	14.0	10.3	090	29	5.7	2.2	299	29	12.3	9.6	306	25	6.2	3.7	275				
0.3 a.m.s.l.	29	5.9	3.5	216													29	13.1	11.4	305	25	7.0	4.0	275				
0.6 "	29	6.1	3.3	217	29	14.0	9.4	061	29	12.3	9.0	084	29	5.6	2.0	298	29	14.3	11.7	298	25	9.9	6.8	285				
0.9 "	29	6.2	3.5	213	29	12.3	7.2	066	29	10.9	4.5	098	29	5.5	2.4	307	29	15.4	14.1	285	25	12.4	9.8	300				
1.5 "	29	5.1	1.2	215	29	8.1	2.6	285	29	8.6	2.8	296	29	6.8	4.3	290	24	16.1	10.4	290	25	16.2	14.4	300				
2.1 "	27	5.8	2.3	305	29	11.4	9.3	256	29	13.2	11.0	271	29	10.2	7.7	274	17	19.2	18.4	276	25	18.4	16.4	296				
3.0 "	25	18.4	15.2	293	29	16.4	13.1	254	29	16.5	13.7	259	29	16.7	14.2	259	5	23.0	16.9	270	25	21.0	19.6	285				
4.5 "	20	32.4	31.0	279	1	18.0	18.0	005	24	21.5	18.4	277	27	25.4	21.5	265					25	26.4	24.6	275				
5.4 "	16	37.9	36.1	281					15	29.0	25.2	274	24	34.0	28.4	268					24	33.5	31.4	270				
6.0 "	8	30.6	28.9	290					10	29.7	26.8	279	21	36.1	31.7	269					24	39.0	36.5	265				
7.2 "	5	34.0	31.7	276					4	32.5	26.9	300	17	46.4	42.1	270					23	50.3	47.7	281				
9.0 "									1	31.0	31.0	275	6	59.2	47.5	272					14	65.1	60.2	260				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

February 1956

Station	BAMRAULI				BANGALORE				BAREILLY																			
	1430				2030*				0130				0730				1430				0730							
Time in I.S.T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	29	5.7	4.4	308	28	3.1	2.7	280	29	6.8	6.5	100	29	5.9	5.3	105	29	7.5	6.5	083	29	3.1	2.3	289				
15 a.g.	29	9.4	7.3	314	28	5.8	4.5	285	29	17.1	16.2	100	29	14.9	13.6	106	29	11.4	9.5	088	29	12.4	9.9	312				
3 a.m.s.l.	29	9.2	7.4	311	28	6.9	5.1	290													29	11.2	8.9	309				
6 "	29	8.8	7.1	303	28	9.5	7.0	245													29	15.9	13.9	305				
9 "	29	10.7	9.3	304	28	11.6	9.1	296													29	15.1	12.8	308				
5 "	29	16.5	15.2	302	28	16.1	14.5	295	28	17.3	13.9	083	29	14.8	10.9	083	29	9.8	8.6	078	29	16.7	14.7	304				
1 "	27	19.6	19.2	297	28	18.7	16.5	286	27	10.6	7.7	051	28	14.8	9.6	055	29	8.9	7.1	077	29	18.2	16.1	301				
0 "	26	26.2	22.4	287	28	22.0	19.6	280	22	8.9	5.6	045	28	9.6	6.2	050	26	9.7	6.8	060	28	19.6	17.5	291				
5 "	22	28.6	26.7	282	28	26.0	23.5	275	15	9.8	1.3	112	25	10.7	1.0	177	24	10.7	0.6	311	16	22.1	20.5	279				
4 "	17	37.3	35.1	278	28	33.6	30.9	270	7	10.0	3.5	188	24	12.4	3.8	251	24	11.8	2.7	262	9	26.7	24.7	277				
0 "	11	38.8	35.3	275	28	39.2	36.3	265	3	11.7	3.7	330	24	12.8	4.1	255	24	13.2	4.5	247	3	42.7	41.0	268				
2 "	8	50.1	49.7	262	25	55.2	52.3	262	1	18.0	18.0	260	20	16.3	10.1	236	22	14.9	7.4	252								
0 "					18	76.5	71.9	254					15	25.9	21.5	222	20	25.9	21.3	221								

Station	BAREILLY				BEGUMPET				BHAGALPUR																			
	1430				0130				0730				1430				0730				1430							
Time in I. S. T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	29	5.2	4.8	282	29	4.2	2.6	110	29	1.9	1.0	098	29	6.6	3.7	085	29	2.5	1.9	236	29	5.3	5.0	275				
15 a.g.	29	9.1	8.3	291	29	13.4	9.5	117	29	10.2	5.4	133	29	7.9	4.5	088	28	10.9	7.5	272	29	10.2	9.2	288				
3 a.m.s.l.	29	9.0	8.3	288													28	10.9	7.7	290	29	10.3	9.3	286				
6 "	29	10.2	9.6	291	29	8.0	5.4	110	29	5.9	2.9	132	29	7.3	4.5	085	28	11.6	9.3	308	29	11.0	10.1	287				
9 "	29	11.0	10.2	293	29	14.8	11.2	119	29	13.5	9.9	118	29	8.4	4.7	093	28	11.3	8.6	302	28	10.7	9.0	290				
5 "	29	14.2	12.8	301	29	12.5	7.8	088	29	14.0	8.1	093	29	8.2	3.7	084	27	13.6	11.6	300	26	14.7	13.6	295				
1 "	29	16.1	14.6	300	29	12.1	4.9	020	29	12.3	7.2	012	29	8.4	2.7	047	26	16.7	15.9	297	25	20.0	19.2	299				
0 "	29	17.9	16.6	293	29	12.6	6.8	328	28	13.8	8.0	342	27	9.1	4.4	325	19	21.7	21.2	298	25	26.0	25.8	294				
5 "	28	26.4	23.7	285	2	9.0	8.7	002	28	12.7	6.9	271	28	15.3	10.2	270	5	18.6	14.6	285	17	29.3	28.6	283				
4 "	26	31.9	29.5	285					27	17.7	11.7	262	27	19.3	15.1	270	3	25.7	24.1	286	13	32.9	31.7	277				
0 "	19	34.9	33.4	275					25	20.3	13.6	264	26	23.1	18.5	264	2	26.0	26.0	307	8	34.6	33.1	283				
2 "	9	44.8	43.3	261					6	25.3	23.7	236	26	27.3	24.5	257	1	35.0	35.0	310	1	43.0	43.0	270				
0 "	3	81.7	79.9	258									21	38.1	33.8	253												

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

February 1956

Station	COCHIN												DUM DUM															
	0130				0730				1430				0130				0830*				1430							
in I.S.T.																												
in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
face . . .	28	0.8	0.5	015	29	2.0	1.6	050	29	7.6	7.0	256	29	1.7	0.8	276	28	2.6	1.8	002	29	3.9	2.4	329				
5 a. g. . .	28	4.5	1.5	018	29	5.2	4.0	082	29	6.1	5.8	257	29	11.5	6.3	281	28	9.9	5.6	342	28	7.6	5.0	327				
a. m. s. l. . .	28	4.3	1.8	351	29	4.9	2.2	077	29	5.1	4.3	274	28	11.1	6.0	294	28	9.1	6.0	333	28	7.5	4.7	322				
„ . . .	28	4.3	1.4	007	29	4.0	1.4	055	29	3.6	1.6	333	28	10.0	6.2	308	28	8.5	6.0	324	28	7.5	5.7	310				
„ . . .	28	5.0	1.9	086	29	3.7	1.3	072	29	4.6	3.2	044	28	10.8	8.2	320	28	9.5	6.6	312	28	8.3	6.8	307				
„ . . .	26	6.4	4.9	080	28	6.5	5.3	063	29	7.9	7.1	058	27	14.1	12.8	322	28	12.5	9.6	297	28	12.3	11.2	309				
„ . . .	23	8.5	7.5	068	29	7.0	5.5	052	28	8.1	6.8	064	24	16.2	15.4	312	28	15.6	13.9	299	28	19.0	17.9	313				
„ . . .	16	10.8	7.9	078	27	7.1	3.4	093	26	7.0	1.3	086	15	13.7	11.8	281	28	18.3	16.3	285	26	20.7	19.5	305				
„ . . .	4	10.5	6.9	079	22	6.7	3.0	107	23	7.7	2.1	045					28	24.3	22.6	268	25	25.1	23.5	275				
„ . . .					21	6.7	3.3	120	22	9.3	0.7	355					28	31.4	30.0	263	25	32.0	29.9	273				
„ . . .					16	6.3	2.2	107	19	10.0	1.4	287					28	38.7	36.9	262	25	38.5	36.1	270				
„ . . .					12	8.3	3.7	158	16	16.3	7.9	227					28	49.8	48.1	260	19	51.5	49.7	264				
„ . . .					4	13.3	6.5	147	12	20.7	14.2	202					26	68.5	65.6	259	7	62.0	54.4	263				

Station	DUM DUM				GADAG												GAUHATI											
	2030*				0130				0730				1430				0130				0830*							
in I. S. T.																												
in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
face . . .	29	1.0	0.3	126	29	9.0	5.5	137	29	7.4	6.0	127	29	7.5	5.4	086	29	1.5	0.9	220	29	2.9	2.3	066				
5 a. g. . .	29	7.3	3.9	317	29	17.7	12.4	109	29	13.7	10.9	125	29	8.3	6.2	086	29	5.7	2.8	210	29	4.4	3.2	073				
a. m. s. l. . .	29	6.9	4.7	310													29	5.8	2.7	245	28	4.4	2.5	073				
„ . . .	29	7.7	6.1	313													29	7.6	3.8	258	28	5.6	2.0	106				
„ . . .	29	8.6	7.1	312	29	18.8	14.2	108	29	16.4	14.1	121	29	8.6	7.5	090	29	8.3	4.1	275	28	7.4	2.4	114				
„ . . .	29	11.7	9.9	306	29	14.1	12.2	099	29	13.6	11.1	108	29	9.1	7.4	085	28	7.3	5.5	267	28	9.3	1.9	118				
„ . . .	29	15.0	13.7	308	29	10.8	8.6	089	29	9.7	6.3	077	29	9.4	7.4	087	24	7.2	4.2	247	28	8.8	2.0	234				
„ . . .	29	17.2	15.5	297	27	8.0	2.7	056	26	10.5	4.1	055	28	7.5	2.2	095	21	18.9	14.8	281	28	18.0	17.4	270				
„ . . .	28	23.2	21.1	272	19	14.0	9.8	261	23	14.7	3.9	251	24	12.4	5.7	282	1	31.0	31.0	275	29	36.3	35.3	271				
„ . . .	28	30.9	30.0	267	11	20.7	19.0	266	22	16.9	9.3	262	20	16.3	7.3	271					29	41.7	40.0	268				
„ . . .	27	36.5	34.8	265	3	28.0	27.0	273	21	19.1	12.1	261	19	17.8	10.0	272					29	48.7	46.7	267				
„ . . .	27	48.4	46.3	258					16	19.3	15.4	257	15	22.8	16.3	251					27	61.0	58.9	265				
„ . . .	25	61.1	58.8	256					2	40.5	40.5	222	7	29.6	26.7	229					16	86.1	82.9	257				

TABLE IV--MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

February 1956

Station	GAUHATI								GAYA								GOPALPUR											
	1430				2030*				0130				0730				1430				0130							
Time in f. s. T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	29	4.4	1.9	337	28	3.0	0.8	216	29	2.1	1.2	225	29	2.7	1.5	204	29	8.3	6.4	304	29	4.1	2.1	251				
0.15 a. g.	29	6.5	2.4	326	27	4.3	0.9	201	29	10.0	7.1	283	29	9.5	5.6	236	28	9.5	8.0	287	29	12.9	8.0	230				
0.3 a. m. s. l.	29	6.0	1.9	325	27	4.3	0.5	192	29	10.4	8.1	296	29	9.7	6.0	270	28	9.5	7.8	297	29	11.1	7.2	221				
0.6 "	29	6.3	0.9	303	27	5.0	1.0	311	29	12.5	11.2	305	29	10.1	7.7	305	28	9.8	8.7	296	29	9.8	5.6	214				
0.9 "	29	6.4	10.2	250	27	5.7	1.4	306	28	13.7	12.1	301	28	10.7	8.5	304	28	10.0	9.2	299	29	9.6	2.4	235				
1.5 "	29	8.7	6.8	227	27	7.1	4.1	255	29	15.4	13.6	296	28	13.6	11.3	298	27	13.8	13.6	299	28	11.0	7.6	336				
2.1 "	29	13.0	12.6	225	26	11.0	9.8	250	25	14.3	14.1	291	28	18.4	17.4	300	27	19.2	18.5	298	28	13.9	11.3	347				
3.0 "	28	18.3	16.6	255	26	15.7	14.1	262	16	18.3	17.4	294	27	20.0	18.7	296	26	24.2	23.6	294	25	13.0	9.5	346				
4.5 "	25	37.0	37.1	272	26	40.6	40.1	268	2	25.5	25.3	261	14	22.3	21.0	264	24	24.4	23.6	287	8	16.4	13.3	274				
5.4 "	20	44.3	43.3	272	26	46.1	44.7	268					9	23.2	22.3	271	22	26.8	25.9	282	5	22.2	19.7	253				
6.0 "	14	46.3	46.3	275	26	51.6	49.4	268					6	26.7	26.4	270	21	30.7	29.6	277	2	32.0	28.5	251				
7.2 "	4	51.5	50.9	275	26	67.1	64.4	262					1	17.0	17.0	275	11	38.7	37.7	273								
8.0 "					16	79.7	76.8	266					1	41.0	41.0	245	4	49.5	46.5	262								
Station	GOPALPUR								GORAKHPUR								GWALIOR											
Time in f. s. T.	0730				1430				0730				1430				0130				0730							
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	29	3.2	2.1	333	29	8.6	5.9	150	29	2.1	0.9	260	29	4.7	2.9	253	29	1.2	0.7	258	29	1.5	0.7	302				
0.15 a. g.	29	8.8	5.0	294	29	13.4	10.3	150	29	11.4	7.5	304	29	8.6	6.2	274	29	7.1	3.5	353	29	7.9	2.3	321				
0.3 a. m. s. l.	29	9.0	3.7	287	29	11.2	7.7	142	29	12.0	8.4	302	29	8.7	6.5	275	29	5.6	0.9	040	29	5.9	1.4	300				
0.6 "	29	9.2	3.5	227	29	8.0	2.2	139	29	12.7	9.8	300	29	9.6	7.9	285	29	8.9	5.7	342	29	9.3	4.1	354				
0.9 "	29	9.3	1.3	307	29	7.8	1.8	306	29	12.9	9.8	297	29	10.3	8.6	287	29	9.3	6.3	316	29	9.6	5.7	340				
1.5 "	29	11.5	6.9	009	29	11.3	8.3	321	29	13.0	13.6	290	28	14.0	12.7	293	29	10.4	8.7	287	29	12.2	9.4	311				
2.1 "	29	12.0	8.6	003	27	14.6	11.1	340	25	15.0	15.1	296	28	20.0	18.6	299	29	13.6	11.8	277	29	16.5	13.6	28				
3.0 "	28	14.5	9.6	340	28	16.0	11.6	328	16	20.5	18.8	285	27	24.2	22.8	292	28	18.6	17.0	286	29	17.9	16.7	27				
4.5 "	25	16.3	12.9	268	26	19.3	14.0	283	6	20.8	20.5	269	24	31.2	30.4	284	2	30.0	29.9	254	26	26.1	24.5	27				
5.4 "	25	23.2	20.6	259	26	24.8	20.9	269	3	26.6	26.0	254	19	32.6	31.8	283					22	34.4	32.0	26				
6.0 "	25	28.6	25.8	260	26	29.0	25.5	264	3	25.0	23.8	276	13	36.2	34.6	279					15	39.8	37.1	26				
7.2 "	14	35.4	18.1	254	16	38.7	35.7	262					4	41.5	35.4	293					6	36.5	32.3	27				
8.0 "	9	45.7	44.0	262	7	45.4	43.2	250					2	49.0	42.9	283												

TABLE IV.—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

February 1956

Station	GWALIOR				IMPHAL				JABALPUR															
	1430				0730				1430				0130				0730				1430			
me in I.S.T.																								
in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
face	29	2.6	1.6	350	29	0.4	0.3	169	29	6.3	5.5	232	29	1.1	0.8	074	29	1.2	0.9	104	29	2.8	1.7	336
5 a.g.	29	5.9	4.2	344	29	2.0	1.4	160	29	7.5	6.3	235	29	11.7	8.6	066	29	7.0	4.9	098	29	5.9	4.7	332
a.m.s.l.	29	5.3	3.8	348																				
"	29	6.8	4.9	330									29	12.0	9.5	061	29	8.0	5.8	091	29	5.9	4.6	332
"	29	7.7	5.2	300	29	1.8	1.3	162	29	6.8	5.8	234	29	12.3	6.6	055	29	10.1	3.0	066	29	5.7	4.2	332
"	29	10.7	8.9	294	29	4.5	0.7	029	29	9.0	8.4	246	28	8.3	4.3	300	28	9.4	4.2	310	29	9.8	6.4	306
"	29	14.8	13.6	283	29	8.1	5.4	259	29	11.3	10.7	250	28	13.5	10.6	280	28	13.3	10.3	286	29	13.2	10.8	283
"	28	22.0	20.8	276	27	19.1	17.5	276	27	17.5	16.3	273	27	16.8	14.0	278	26	14.7	12.9	290	28	18.2	15.6	274
"	27	26.5	23.8	275	19	30.6	28.3	275	22	40.2	39.2	273	13	18.7	17.2	281	16	17.2	14.9	286	27	24.5	22.1	274
"	27	34.6	31.2	273	7	35.7	32.9	271	14	43.6	41.2	272	5	15.6	12.7	272	10	18.0	16.8	269	26	31.8	28.0	270
"	27	40.0	36.6	273	4	38.0	34.5	281	10	47.0	43.0	275	3	10.0	9.9	246	8	20.6	20.1	272	24	33.3	28.9	276
"	26	51.7	49.0	267					2	48.0	44.5	291					1	40.0	40.0	260	8	41.0	39.3	259
"	10	62.3	57.8	267					1	59.0	59.0	310									3	47.3	43.7	273

Station	JAGDALPUR												JAIPUR								JAMSHEDPUR			
	0130				0730				1430				0730				1430				0730			
me in I.S.T.																								
in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
face	29	1.3	0.4	267	29	1.2	0.3	145	29	3.3	1.6	009	29	2.1	1.3	056	29	4.3	0.9	273	29	3.4	2.1	390
5 a.g.	29	7.6	1.1	016	29	6.5	1.6	173	29	6.5	3.3	019	29	8.5	4.7	064	29	6.5	2.8	262	27	7.5	6.2	302
a.m.s.l.																					27	7.6	6.1	314
"	29	4.7	0.9	323	29	2.9	1.2	186	29	5.1	2.4	016	29	9.0	4.0	063	29	6.6	3.0	263	27	9.4	7.3	336
"	29	8.6	1.6	075	29	9.0	1.0	093	29	6.4	3.7	019	29	7.4	2.1	339	29	6.3	2.8	266	26	10.1	8.4	390
"	29	8.7	2.7	010	29	10.4	4.0	019	29	7.1	4.0	001	29	8.3	5.2	303	29	8.0	4.8	279	25	13.6	12.1	309
"	29	8.8	4.6	347	29	12.9	8.2	339	28	8.2	5.5	345	28	10.7	8.8	291	29	10.4	7.5	280	25	19.5	17.6	311
"	25	9.2	7.3	335	24	11.7	9.2	354	28	9.2	6.0	329	28	14.9	13.0	269	29	16.6	13.4	275	25	21.8	19.9	308
"	11	13.8	11.8	263	23	12.3	9.1	272	24	16.7	12.5	273	23	25.0	22.6	277	26	25.0	22.8	269	9	17.2	15.0	271
"	6	21.5	20.7	256	23	19.4	15.8	261	22	22.6	18.3	258	13	30.9	28.0	269	26	31.4	28.9	269	6	21.0	16.6	259
"	1	20.0	20.0	220	21	24.3	21.4	252	22	25.8	21.9	260	6	25.5	22.0	277	25	36.5	33.6	267	6	31.7	24.8	261
"	1	35.0	33.0	220	8	32.4	31.2	252	13	35.9	30.9	256	3	30.3	30.0	264	15	46.8	40.7	270	4	40.5	39.9	241
"					5	51.0	49.8	246	5	48.3	39.6	263	1	35.0	35.0	245					1	101.0	101.0	235

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

February 1956

Station	JAMSHEDPUR				JHARSUGUDA												JODHPUR							
	1430				0130				0730				1430				0130				0730			
Time in I. S. T.																								
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	29	4.6	3.1	330	29	2.6	2.2	005	29	4.0	3.6	024	29	1.8	1.2	290	29	5.7	4.2	028	29	4.5	4.0	041
0.15 a. g. . .	28	6.2	4.5	330	27	6.2	4.7	016	28	10.2	4.6	096	29	3.9	2.3	294	29	12.8	6.5	038	29	10.5	6.9	082
0.3 a. m. s. l. .	28	6.2	4.5	328	27	7.5	3.8	359	28	8.7	8.3	029	29	4.2	2.6	295	29	11.2	6.3	030	29	9.0	6.5	071
0.6 ,, . . .	27	7.0	6.0	318	27	9.0	4.6	352	28	9.0	5.6	021	29	4.8	3.6	297	29	12.8	4.6	046	29	11.6	5.1	078
0.9 ,, . . .	26	8.3	7.4	312	26	8.5	6.2	342	28	9.8	5.6	357	29	5.7	4.4	303	29	10.4	1.8	073	29	10.6	3.3	058
1.5 ,, . . .	25	14.2	13.5	314	26	8.4	7.1	317	27	11.3	8.0	305	29	9.9	8.5	316	29	9.1	1.6	264	29	9.4	1.4	261
2.1 ,, . . .	25	19.5	18.6	314	24	12.5	10.9	315	27	14.9	12.8	318	29	16.0	14.4	317	27	8.1	4.1	248	29	10.3	4.9	271
3.0 ,, . . .	25	21.9	20.9	307	14	15.4	12.5	314	21	18.3	16.1	320	27	19.2	16.7	310	23	10.1	8.5	272	27	11.4	8.1	291
4.5 ,, . . .	24	21.5	20.4	279	1	15.0	15.0	175	9	18.9	16.7	280	22	20.5	18.2	278	1	37.0	37.0	255	21	19.4	17.1	277
5.4 ,, . . .	21	29.2	27.0	272					4	25.0	22.9	251	19	27.4	25.5	278					17	26.8	24.6	268
6.0 ,, . . .	20	34.3	32.6	272					3	32.7	28.9	265	14	32.3	29.9	371					9	26.9	23.2	276
7.2 ,, . . .	15	41.6	40.0	264					1	56.0	56.0	225	5	41.2	38.9	261					4	38.3	36.1	276
9.0 ,, . . .	7	59.0	58.0	254									3	62.3	55.3	267								

Station	JODHPUR				MADRAS												MANGALORE							
	1430				0130				0830*				1430				2030*				0130			
Time in I. S. T.																								
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	29	5.0	1.1	007	29	3.1	0.9	327	29	4.3	2.2	027	29	8.0	7.2	074	29	6.6	5.7	074	29	5.5	4.3	048
0.15 a. g. . .	28	5.1	1.0	305	29	7.4	6.4	075	29	6.7	3.7	038	29	9.8	8.9	073	29	10.2	8.8	075	29	7.5	6.2	005
0.3 a. m. s. l. .	28	6.6	1.7	331	29	8.3	7.4	083	29	7.7	4.7	055	28	9.8	8.5	070	29	11.5	10.4	072	29	7.3	6.5	350
0.6 ,, . . .	28	6.5	0.2	076	29	10.6	9.4	084	29	10.2	7.8	070	28	10.3	8.5	065	29	13.3	12.1	070	29	7.2	6.8	343
0.9 ,, . . .	28	6.6	0.3	047	29	14.0	12.5	075	29	12.6	11.3	078	28	12.5	10.1	063	29	15.3	14.0	065	28	6.2	4.9	007
1.5 ,, . . .	29	6.9	1.4	284	29	15.6	12.6	053	29	18.8	16.6	068	29	15.8	13.0	052	29	16.8	13.7	053	28	8.9	6.3	055
2.1 ,, . . .	29	9.1	4.4	275	29	14.6	11.7	039	29	17.2	13.6	050	29	14.1	11.0	043	29	14.8	11.7	039	27	14.6	13.8	088
3.0 ,, . . .	29	15.3	11.9	261	29	11.3	4.7	025	29	13.0	5.3	062	26	10.9	4.9	016	29	13.2	7.2	025	27	12.9	11.4	090
4.5 ,, . . .	28	24.2	21.1	269	6	8.0	4.8	216	29	11.4	0.8	226	24	11.0	2.4	298	29	11.6	2.2	315	9	12.7	3.6	170
5.4 ,, . . .	28	31.0	27.6	269	1	9.0	9.0	155	29	13.4	2.7	231	23	13.0	3.0	243	29	12.9	3.2	260	9	14.6	3.9	177
6.0 ,, . . .	28	36.6	32.4	267	1	6.0	6.0	225	29	14.3	4.9	220	23	12.6	4.9	232	29	13.7	4.9	246	8	13.6	9.5	261
7.2 ,, . . .	19	41.9	37.2	271					28	16.4	11.1	231	23	15.0	10.1	248	29	20.1	11.6	241	4	11.3	10.4	250
9.0 ,, . . .	5	52.4	51.5	260					25	24.6	21.6	222	20	27.1	23.7	226	23	24.0	20.3	217	1	37.0	37.0	220

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

February 1956

Station	MANGALORE								MASULIPATAM								MINICOY															
	0730				1430				0130				0730				1430				0130											
in I.S.T.																																
n Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
ce . . .	29	6.2	5.6	083	29	9.9	7.7	269	29	2.7	0.6	173	29	4.1	2.9	039	29	7.0	6.0	131	29	2.7	2.1	017								
a.g. . .	29	8.8	6.8	068	29	8.6	7.2	262	29	8.9	6.3	150	29	7.3	4.0	088	29	7.5	6.1	124	29	6.7	5.6	015								
m.s.l. .	29	7.4	4.6	036	29	8.5	6.5	269	29	9.0	7.1	144	29	7.4	5.2	122	29	6.9	4.9	123	29	6.7	5.6	015								
„ . . .	29	8.0	4.3	055	29	5.2	1.2	216	29	9.4	8.3	120	29	8.9	7.5	130	29	7.0	3.7	097	29	6.7	5.1	030								
„ . . .	29	9.5	5.4	084	29	6.9	4.5	093	28	5.0	1.9	085	29	10.0	8.0	110	29	8.1	4.6	070	29	7.6	5.5	058								
„ . . .	28	10.6	7.6	102	29	11.2	9.9	082	29	14.0	9.5	053	28	13.9	9.3	048	29	13.3	9.0	046	27	11.2	9.7	083								
„ . . .	28	10.7	8.3	101	29	12.2	11.0	078	23	8.5	7.5	067	29	13.7	9.3	034	29	15.9	11.8	032	25	13.3	11.1	077								
„ . . .	26	9.8	7.3	089	28	9.4	6.0	077	28	10.1	5.6	350	27	8.8	3.8	345	29	10.7	6.2	340	21	9.9	5.0	059								
„ . . .	24	12.0	1.1	336	26	10.5	2.1	287	9	14.1	9.7	252	25	13.7	7.1	267	28	14.6	7.8	274	10	10.1	4.6	106								
„ . . .	23	13.1	3.2	268	26	13.0	4.3	277	6	16.1	11.9	231	25	16.8	9.3	255	27	16.8	11.0	262	4	7.7	3.9	089								
„ . . .	21	13.9	5.6	260	26	14.3	7.3	280	5	18.6	13.6	235	25	19.9	11.8	246	26	16.6	11.1	259	2	10.0	8.5	305								
„ . . .	13	12.2	7.7	230	25	20.5	12.3	262	1	11.0	11.0	075	13	25.2	23.4	240	17	21.4	15.2	260	1	5.0	5.0	255								
„ . . .	5	13.4	10.7	199	23	29.3	25.3	230					9	37.2	33.3	230	6	28.5	26.7	241	1	17.0	17.0	255								

Station	MINICOY								MOHANBARI								MUSSOORIE															
	0730				1430				0130				0730				1430				0730											
in I.S.T.																																
n Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
ce . . .	29	2.4	1.8	026	29	4.7	4.2	015	29	0.9	0.9	045	29	2.1	1.7	046	29	1.0	0.7	062	29	3.5	2.0	003								
a.g. . .	29	6.5	5.3	025	29	9.0	8.3	013	28	7.2	6.8	056	29	7.9	7.7	055	28	3.0	1.6	041	29	8.0	2.7	357								
m.s.l. .	29	6.8	5.5	030	29	9.2	8.4	014	28	6.9	6.5	053	29	8.3	8.0	049	28	3.1	1.6	041												
„ . . .	29	7.1	5.2	048	29	8.2	7.1	022	28	5.0	4.0	045	29	6.9	5.9	038	29	2.4	1.2	057												
„ . . .	28	8.5	6.4	081	27	7.6	6.2	053	28	4.0	1.0	155	29	5.3	3.4	036	29	2.6	0.8	072												
„ . . .	26	11.6	10.5	093	21	8.9	7.8	081	28	6.1	3.2	217	29	4.9	1.4	200	29	4.1	2.7	217												
„ . . .	25	9.9	7.9	092	14	8.1	4.4	091	27	7.2	5.2	224	28	6.5	4.7	210	28	8.4	6.5	212	29	8.3	3.3	355								
„ . . .	18	8.0	0.4	085	11	8.5	1.4	141	26	8.7	6.1	231	26	8.4	3.4	224	26	11.8	8.8	213	29	8.2	3.4	287								
„ . . .	16	8.8	3.8	076	9	7.5	0.2	135	2	21.5	20.3	246	20	18.3	15.6	265	22	23.4	19.9	258	27	16.3	13.2	281								
„ . . .	16	11.6	5.6	052	7	10.1	3.5	073	1	17.0	17.0	265	11	37.3	36.4	267	20	36.1	33.0	262	23	21.4	18.7	282								
„ . . .	12	9.7	4.1	015	6	11.5	6.5	040	1	31.0	31.0	270	8	35.9	35.2	266	20	43.7	38.3	266	20	26.0	23.5	275								
„ . . .	9	11.5	4.0	276	4	13.5	9.7	099					1	38.0	38.0	235	4	35.3	17.5	278	12	32.4	30.2	269								
„ . . .	4	17.5	5.5	170	2	14.0	6.7	087													1	39.0	39.0	255								

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

February 1956

Station	MUSSOORIE				NAGPUR										NEW DELHI									
	1430				0130				0830*				1430				2030*				0130			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	29	6.7	6.0	210	29	4.3	1.4	002	27	3.1	2.5	055	29	3.3	1.3	305	27	4.7	2.8	112	29	3.6	3.0	308
0.15 a. g.	26	7.7	7.4	200	29	11.0	4.2	107	27	4.5	2.1	068	29	4.8	2.1	304	27	5.4	2.9	120	29	13.9	11.9	332
0.3 a. m. s. l.																					29	11.1	9.4	329
0.6 "					29	11.7	4.8	119	27	5.5	2.3	085	29	5.2	1.5	294	27	5.9	2.6	125	29	14.0	12.2	325
0.9 "					29	9.2	3.8	130	27	8.4	2.5	117	29	5.3	1.7	283	27	6.6	1.1	151	29	13.8	11.4	314
1.5 "					28	7.5	1.7	272	27	9.0	1.7	286	28	6.5	3.3	282	27	7.6	2.1	303	29	14.5	13.2	296
2.1 "	26	8.2	7.9	200	29	9.0	6.7	286	27	10.2	5.4	276	28	8.9	6.4	297	27	9.5	6.2	286	27	15.6	14.7	296
3.0 "	24	7.3	2.8	287	27	12.9	10.8	287	26	12.5	8.9	291	28	14.3	11.5	298	27	13.4	11.2	286	23	16.6	15.2	293
4.5 "	23	14.0	10.7	295	1	13.0	13.0	270	24	20.6	18.6	275	27	21.6	18.7	276	27	21.1	18.9	272				
5.4 "	22	20.6	14.3	291					24	28.2	25.8	264	26	26.3	23.2	268	27	27.2	24.8	265				
6.0 "	22	23.7	24.3	283					23	31.3	28.8	261	24	31.0	27.4	266	24	31.9	29.2	262				
7.2 "	12	33.7	33.1	281					20	37.2	33.7	253	18	38.5	33.9	265	24	38.2	34.5	260				
9.0 "	7	57.4	55.0	271					19	55.3	53.9	249	9	55.3	52.8	262	19	58.0	56.3	244				

Station	NEW DELHI										POONA													
	0830*				1430				2030*				0130				0730				1430			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	29	5.7	4.2	290	29	9.6	8.4	311	29	4.6	3.2	310	29	2.3	1.9	234	29	0.6	0.3	244	29	1.3	0.1	305
0.15 a. g.	29	7.4	5.8	297	29	9.7	7.4	308	29	7.1	5.0	309	29	6.0	4.1	290	29	4.9	1.5	123	29	4.3	0.6	061
0.3 a. m. s. l.	29	6.9	5.4	297	29	10.9	8.3	307	29	6.7	4.7	310												
0.6 "	29	10.0	8.2	305	29	9.9	7.3	299	29	10.2	7.8	309	29	4.2	3.1	223	29	3.0	1.8	210	29	3.5	0.4	038
0.9 "	29	11.7	10.2	308	29	9.9	7.7	300	29	13.2	10.9	309	29	9.0	6.1	324	29	8.4	4.1	085	29	4.8	0.8	116
1.5 "	29	13.8	12.1	309	29	12.3	9.9	301	29	12.8	11.3	302	29	9.5	4.4	042	29	11.9	5.2	109	29	5.3	2.1	182
2.1 "	29	14.0	12.0	303	29	14.7	12.2	297	29	13.0	11.7	297	29	9.9	5.1	128	29	9.4	5.7	153	29	7.5	3.6	198
3.0 "	29	15.0	13.8	283	29	17.0	14.3	292	29	14.3	11.7	288	27	9.4	6.0	140	28	9.6	3.0	208	28	8.7	4.1	249
4.5 "	28	22.2	20.1	270	29	24.8	21.7	282	29	21.6	18.6	280	12	14.0	11.5	265	26	17.8	13.4	270	27	17.5	12.9	274
5.4 "	28	28.4	25.3	271	29	30.8	27.0	276	29	28.3	24.6	271	3	27.3	23.1	261	23	22.6	17.9	270	27	23.9	19.3	270
6.0 "	28	33.0	29.8	270	29	35.1	32.0	276	29	32.8	29.6	268	1	43.0	43.0	235	21	29.1	22.7	264	26	29.3	24.8	263
7.2 "	26	39.7	34.4	266	27	46.3	40.0	274	29	43.3	40.8	268					11	38.2	33.4	254	19	36.2	29.4	260
9.0 "	26	58.0	54.5	266	22	68.4	63.7	276	29	58.0	54.5	265									4	48.3	47.9	250

TABLE IV--MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 3-6 km. above mean sea level

February 1956

Station	POONA				PORT BLAIR												RAIPUR								
	2030*				0130				0730				1430				0130				0730				
Time in I.S.T.																									
in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	
face	25	4.2	3.2	306	29	3.8	2.7	014	29	3.6	2.7	033	29	6.8	5.9	045	29	1.8	0.4	186	29	1.2	0.5	034	
5 a. g.	25	10.0	7.5	303	28	9.1	7.4	020	29	9.4	7.1	034	29	11.6	8.7	048	29	7.9	0.3	077	29	7.5	4.3	050	
a. m. s. l.					28	9.3	7.6	024	29	10.5	8.0	039	29	12.0	9.1	048									
"	25	6.1	4.6	305	27	9.7	7.7	040	28	11.2	7.8	055	28	9.8	6.2	039	29	7.3	1.2	355	29	8.3	3.2	051	
"	25	11.8	5.3	275	26	9.1	5.3	070	27	10.3	6.4	084	27	8.9	4.0	051	29	6.6	1.5	339	29	6.9	1.3	033	
"	25	11.2	4.5	329	23	8.5	4.5	134	26	11.0	7.1	114	25	10.2	5.5	124	29	6.4	3.1	301	29	8.0	4.4	288	
"	25	10.2	1.7	118	22	10.9	5.8	160	25	12.1	5.9	140	22	9.7	4.2	117	28	8.0	5.4	306	29	11.9	8.5	308	
"	24	9.1	5.0	123	12	10.4	2.9	189	23	12.8	6.4	160	18	9.3	3.6	146	27	13.0	9.9	304	28	15.9	11.5	309	
"	21	8.3	3.2	253					17	9.3	5.7	094	11	7.7	4.3	108					24	17.3	14.5	274	
"	18	14.2	6.9	293					13	9.0	4.8	081	10	9.8	5.2	096					18	22.8	19.8	269	
"	14	14.5	9.5	287					12	12.7	6.3	078	10	12.4	7.9	089					14	30.6	28.2	261	
"	5	12.4	7.5	346					7	12.6	11.6	109	8	13.3	8.0	123									
"									3	11.0	5.8	055	3	11.0	8.5	097									
Station	RAIPUR				SANTACRUZ												TEZPUR								
Time in I.S.T.	1430				0130				0830*				1430				2030*				0130				
in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	
face	29	2.3	1.3	320	29	2.7	2.0	003	29	5.5	4.1	035	29	9.1	8.1	310	29	8.9	8.4	340	29	1.1	0.6	059	
5 a. g.	29	4.9	2.6	325	29	10.2	8.8	003	29	11.0	7.9	040	29	9.1	7.9	308	28	17.0	15.7	345	29	9.5	6.5	084	
a. m. s. l.					29	12.1	10.6	005	29	10.8	7.5	040	29	8.9	6.8	322	28	13.0	14.0	345	29	9.6	6.1	093	
"	29	5.3	3.2	322	29	13.8	12.2	008	29	10.8	7.0	035	29	8.8	4.4	350	28	12.9	10.7	345	29	8.3	3.2	115	
"	29	5.9	3.8	317	29	12.2	10.6	005	29	11.0	6.3	038	29	8.4	3.9	353	28	9.9	7.4	343	28	6.6	1.8	146	
"	29	6.3	4.6	316	29	8.0	4.6	340	29	9.4	1.6	350	29	7.7	1.0	010	28	7.6	1.2	055	27	7.4	4.2	269	
"	26	11.1	8.4	317	29	8.0	3.9	162	29	10.2	5.3	214	29	8.7	3.7	187	28	9.3	4.8	147	22	7.1	4.7	266	
"	28	15.7	12.4	307	27	12.7	8.5	157	29	12.3	5.7	215	29	11.1	4.1	227	28	11.5	5.3	140	13	8.5	4.3	243	
"	25	20.6	17.5	272	4	19.7	13.0	246	29	18.3	14.1	274	29	15.7	11.3	261	27	14.1	9.5	270					
"	22	28.4	25.4	274					29	23.8	19.4	270	29	22.3	18.6	268	27	21.1	17.3	270					
"	21	35.4	31.2	269					28	27.9	23.4	270	29	27.1	23.2	265	27	25.8	22.2	270					
"	6	41.8	40.4	251					28	35.2	30.4	266	24	37.7	32.4	257	25	34.9	30.4	267					
"									25	51.9	44.0	260	15	54.7	46.3	257	23	51.7	45.2	255					

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

February 1956

Station	TEZPUR								TIRUCHIRAPALLI												TRIVANDRUM			
	0730				1430				0130				0730				1430				0130			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	29	1.6	1.5	046	29	1.3	1.0	234	29	4.9	4.4	034	29	2.9	2.7	013	29	6.9	6.1	053	29	2.8	1.7	004
0.15 a. g. . .	29	6.7	6.2	059	29	4.0	1.9	199	28	12.8	12.5	055	29	9.9	9.5	031	29	9.4	9.0	057	29	7.3	4.0	310
0.3 a. m. s. l. . .	29	7.1	5.9	067	29	4.3	1.8	209	28	13.4	13.1	056	29	10.6	10.2	041	29	9.5	9.0	057	29	7.0	3.7	301
0.6 „ . . .	29	7.6	5.2	089	29	4.5	1.7	200	28	15.6	15.2	062	29	11.6	11.1	064	29	10.1	9.7	055	29	6.6	3.7	328
0.9 „ . . .	28	7.0	3.0	089	28	4.7	0.9	168	27	17.1	16.4	058	29	13.0	11.9	064	29	9.9	9.2	053	29	6.7	4.7	025
1.5 „ . . .	29	7.4	0.3	030	28	7.5	2.7	215	27	15.5	14.3	046	29	14.5	12.5	051	29	12.9	12.0	047	29	10.8	8.9	063
2.1 „ . . .	27	8.1	1.3	240	28	9.4	5.5	220	25	13.0	10.0	033	27	12.7	10.2	041	28	13.2	11.3	042	28	12.8	10.8	059
3.0 „ . . .	26	8.8	4.8	248	27	11.9	8.9	247	18	10.7	4.8	053	24	11.3	4.5	055	26	10.7	6.3	040	26	9.5	3.7	085
4.5 „ . . .	19	29.9	28.5	272	25	35.6	35.2	270	1	12.0	12.0	230	21	9.4	1.3	205	22	9.9	0.7	093	18	9.7	1.5	040
5.4 „ . . .	10	32.3	29.9	267	24	42.4	40.8	270					16	13.8	2.3	220	21	11.4	1.1	065	12	12.3	3.1	039
6.0 „ . . .	7	28.8	26.0	274	21	46.0	43.3	274					12	14.3	2.6	312	18	12.2	0.4	347	4	14.5	8.6	012
7.2 „ . . .	2	46.0	45.9	243	13	52.0	48.2	275					3	7.7	5.7	115	9	22.1	9.8	254	1	22.0	22.0	090
9.0 „ . . .					5	60.2	54.2	274					3	19.0	18.0	172	4	29.5	23.3	227				

Station	TRIVANDRUM								UDAIPUR												VENGURLA			
	0730				1430				0130				0730				1430				0130			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	29	2.2	1.9	049	19	4.7	4.2	238	29	0.3	0.2	005	29	0.2	0.2	016	29	2.4	0.6	176	29	1.2	1.2	360
0.15 a. g. . .	29	5.6	3.8	058	29	7.7	7.4	237	29	5.9	4.0	015	29	5.4	4.3	186	29	4.2	0.4	222	29	8.9	8.0	012
0.3 a. m. s. l. . .	29	4.8	1.6	082	29	7.5	7.3	230													29	11.4	10.5	006
0.6 „ . . .	29	3.4	0.8	082	29	5.1	3.4	257													29	12.6	10.9	002
0.9 „ . . .	29	4.3	2.5	053	29	5.8	3.5	011	29	7.6	3.8	033	29	7.2	4.7	068	29	4.7	0.7	237	29	11.8	9.1	001
1.5 „ . . .	29	6.6	4.7	038	28	11.5	10.3	042	29	7.5	1.5	179	29	8.1	1.3	118	29	5.5	2.2	247	29	9.4	5.5	079
2.1 „ . . .	29	9.8	6.5	050	27	10.9	9.2	044	29	10.8	8.3	222	29	8.6	5.4	258	29	10.6	8.0	249	29	12.9	11.0	115
3.0 „ . . .	28	8.8	0.7	136	26	8.8	3.4	070	28	15.2	12.1	248	29	15.4	11.8	261	29	17.6	14.6	255	27	12.1	9.0	107
4.5 „ . . .	25	10.1	3.5	113	21	11.7	3.0	123	5	35.8	29.8	282	25	21.7	18.8	268	28	26.5	23.1	260	9	16.3	8.6	282
5.4 „ . . .	23	11.8	4.3	102	20	11.5	1.8	082					23	29.4	26.2	264	28	34.1	29.3	265				
6.0 „ . . .	22	11.5	3.0	128	19	12.1	1.5	008					17	32.4	29.6	270	28	36.6	32.6	265				
7.2 „ . . .	11	13.5	6.5	152	15	16.9	3.0	146					4	34.0	32.1	266	25	45.0	39.2	272				
9.0 „ . . .	2	13.5	11.6	225	11	24.0	11.2	189					1	23.0	23.0	285	12	57.0	50.6	270				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

February 1956

Station	VENGURLA								VERAVAL								VISAKHAPATNAM								
	0730				1430				0130				0730				1430				0130				
in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	
in Km.																									
ce . . .	29	1.3	1.2	010	29	5.8	4.7	247	29	9.9	8.1	360	29	10.5	9.6	010	29	11.1	7.6	265	29	0.5	0.3	319	
a.g. . .	29	6.1	4.8	046	29	7.1	6.1	253	28	18.2	15.5	360	29	19.8	17.9	012	29	10.9	6.5	270	29	5.0	2.2	238	
m.s.l. .	29	8.3	5.4	046	29	8.2	5.5	235	28	18.4	15.6	005	29	17.4	14.5	016	29	8.7	5.1	292	29	5.7	1.9	213	
„ . . .	29	11.2	7.2	054	29	7.0	3.7	205	28	14.9	12.2	012	29	11.2	8.6	014	29	7.1	5.1	341	29	5.1	1.9	163	
„ . . .	29	13.1	6.7	067	29	6.0	2.0	145	28	11.4	8.2	016	29	8.4	4.3	358	29	6.9	5.9	355	28	5.8	2.4	066	
„ . . .	29	10.9	5.9	127	29	8.3	4.7	091	28	7.5	1.7	160	28	8.3	3.5	229	29	8.0	3.3	321	28	8.7	6.1	020	
„ . . .	29	10.4	6.2	134	28	11.8	7.7	094	28	10.8	6.2	233	28	10.9	4.7	227	29	12.7	7.9	250	28	10.0	8.0	009	
„ . . .	28	8.9	3.8	138	28	8.6	4.2	078	27	14.0	8.0	246	28	13.9	7.7	240	29	14.1	9.8	251	25	8.4	4.5	321	
„ . . .	28	16.2	8.2	272	27	12.8	4.6	271	1	20.0	20.0	255	24	18.5	15.3	272	27	19.9	16.0	272	12	13.7	9.6	273	
„ . . .	27	18.3	12.1	265	27	17.0	12.2	274					21	22.9	19.8	271	26	27.4	23.7	270					
„ . . .	27	21.1	16.3	261	27	20.1	15.3	264					19	28.6	23.8	274	25	29.5	25.4	270					
„ . . .	17	24.5	19.8	258	17	28.2	22.0	261					6	33.3	28.4	288	12	35.3	31.3	264					
„ . . .	2	25.0	24.8	222	5	27.6	19.8	264					1	78.0	78.0	265	5	42.8	34.2	275					
Station	VISAKHAPATNAM																								
in I.S.T.	0730				1430																				
Km.	n	V	v	D	n	V	v	D																	
c . . .	29	0.1	0.1	292	29	11.2	6.6	139																	
.g. . .	29	3.3	1.7	297	29	7.5	4.6	135																	
m.s.l. .	29	4.2	1.2	215	29	6.2	4.2	124																	
„ . . .	29	4.8	1.0	160	29	6.0	2.6	052																	
„ . . .	29	5.8	2.0	053	29	7.0	3.9	022																	
„ . . .	29	10.6	6.3	030	29	12.2	8.3	012																	
„ . . .	29	11.1	7.8	012	29	13.4	9.0	356																	
„ . . .	29	9.0	4.5	303	29	11.2	6.7	313																	
„ . . .	25	14.3	12.0	265	28	16.6	13.8	264																	
„ . . .	23	18.1	16.0	254	27	20.5	17.6	256																	
„ . . .	21	20.1	18.0	250	27	23.3	20.5	256																	
„ . . .	7	19.0	16.0	258	26	29.7	26.5	248																	
„ . . .					21	43.2	41.2	243																	

TABLE V—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds above 9·8 Km. above mean sea level

February 1956

Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D
AHMEDABAD					BANGALORE					DUMDUM					GWALIOR					MANGALORE				
1430 hrs.					0730 hrs.					0830 hrs.*					1430 hrs.					0730 hrs.				
10·5	4	71·3	69·3	265	10·5	8	26·3	21·7	231	10·5	23	70·3	68·0	252	10·5	5	67·6	61·8	262	10·5	3	21·4	20·9	21
12·0	1	39·0	39·0	265	12·0	3	29·3	24·7	226	12·0	17	73·1	71·2	257	12·0	2	59·5	58·4	264	1430 hrs.				
14·1	1	37·0	37·0	285	14·1	1	11·0	11·0	330	14·1	3	116·7	116·7	244	10·5					19	35·4	32·1	21	
16·2	1	43·0	43·0	295	1430 hrs.					16·2	1	50·0	50·0	250	JAGDALPUR					12·0	18	34·2	28·4	21
18·0	1	44·0	44·0	305	10·5	16	26·5	23·6	238	1430 hrs.					14·1	11	28·8	23·6	21					
AMBALA					12·0	13	25·2	20·2	232	10·5	3	73·0	70·7	260	0730 hrs.					16·2	8	20·9	15·5	21
1430 hrs.					14·1	7	25·3	20·6	218	2030 hrs.*					18·0	3	38·3	29·0	21					
10·5	8	50·3	47·5	271	16·2	4	23·7	22·9	208	10·5	20	69·7	67·3	253	10·5	3	62·6	62·0	243	20·0	2	91·0	83·5	21
12·0	6	62·0	58·7	263	BEGUMPET					12·0	19	67·9	66·3	248	12·0	1	70·0	70·0	245	MASULIPATAM				
14·1	1	84·0	84·0	290	1430 hrs.					14·1	5	63·0	57·2	250	JAIPUR					0730 hrs.				
16·2	1	84·0	84·0	300	10·5					GADAG					10·5	1	64·0	64·0	235	10·5	6	42·8	42·2	21
ANANTAPUR					10·5	10	46·6	43·8	240	10·5	1	20·0	20·0	200	1430 hrs.					12·0	2	44·0	43·8	21
0730 hrs.					12·0	2	37·5	35·7	240	GAUHATI					JODHPUR					1430 hrs.				
10·5	4	16·3	12·8	205	14·1	1	29·0	29·0	260	0830 hrs.*					1430 hrs.	10·5	3	40·6	39·5	21				
12·0	3	21·3	17·6	217	BHUBANESHWAR					10·5	6	114·8	110·8	270	12·0	2	55·0	53·0	265	12·0	2	44·0	43·8	21
1430 hrs.					1430 hrs.					12·0	1	58·0	58·0	260	14·1	1	38·0	38·0	21					
10·5	2	19·5	16·9	247	10·5	3	65·3	61·1	263	2030 hrs.*					16·2	1	30·0	30·0	21					
BAIRAGARH					10·5	12	101·0	97·1	260	10·5	12	101·0	97·1	260	18·0	1	25·0	25·0	21					
1430 hrs.					12·0	0	100·7	98·6	268	12·0	0	100·7	98·6	268	20·0	1	29·0	29·0	21					
BHUIJ					14·1	1	89·0	89·0	260	14·1	1	89·0	89·0	260	23·0	1	17·0	17·0	21					
0730 hrs.					16·2	1	58·0	58·0	270	16·2	1	58·0	58·0	270	14·1	1	38·0	38·0	21					
10·5	3	54·7	45·9	257	GAYA					MADRAS					16·2	1	30·0	30·0	21					
12·0	1	36·0	36·0	255	1430 hrs.					0830 hrs.*					18·0	1	25·0	25·0	21					
BAMRAULI					10·5	2	44·0	44·0	310	2030 hrs.*					20·0	1	29·0	29·0	21					
0830 hrs.*					12·0	1	35·0	35·0	290	10·5	12	101·0	97·1	260	23·0	1	17·0	17·0	21					
10·5	9	82·1	79·3	255	14·1	1	29·0	29·0	290	12·0	0	100·7	98·6	268	14·1	17	30·5	25·1	199					
12·0	7	83·3	81·6	250	1430 hrs.					14·1	1	57·0	57·0	265	16·2	4	15·5	11·2	222					
14·1	1	60·0	60·0	270	10·5	1	35·0	35·0	230	14·1	1	57·0	57·0	265	18·0	3	20·0	18·3	190					
2030 hrs.*					12·0	1	52·0	52·0	300	COCHIN					20·0	1	48·0	48·0	190					
10·5	12	97·4	95·0	250	14·1	1	57·0	57·0	265	0730 hrs.					10·5	1	2·0	2·0	21					
12·0	5	87·4	78·6	245	GOPALPUR					1430 hrs.					12·0	1	19·0	19·0	21					
14·1	2	75·5	75·3	253	0730 hrs.					2030 hrs.*					14·1	1	24·0	24·0	240					
16·2	1	64·0	64·0	260	10·5	1	10·0	10·0	095	0730 hrs.					16·2	1	8·0	8·0	080					
1430 hrs.					12·0	3	69·0	67·4	257	1430 hrs.					18·0	1	12·0	12·0	205					
10·5	12	97·4	95·0	250	14·1	2	56·0	54·7	238	10·5	2	57·0	47·3	257	10·5	16	27·8	24·0	234					
12·0	5	87·4	78·6	245	1430 hrs.					12·0	1	52·0	52·0	300	12·0	8	32·0	28·5	216					
14·1	2	75·5	75·3	253	10·5	5	60·0	57·7	254	14·1	1	24·0	24·0	240	14·1	1	24·0	24·0	240					
16·2	1	64·0	64·0	260	12·0	3	69·0	67·4	257	16·2	1	57·0	57·0	265	16·2	1	8·0	8·0	080					
1430 hrs.					14·1	2	56·0	54·7	238	GOPALPUR					18·0	1	12·0	12·0	205					
10·5	12	97·4	95·0	250	0730 hrs.					2030 hrs.*					10·5	23	26·7	24·3	220					
12·0	5	87·4	78·6	245	10·5	1	10·0	10·0	095	0730 hrs.					12·0	18	29·7	25·4	222					
14·1	2	75·5	75·3	253	12·0	3	69·0	67·4	257	1430 hrs.					14·1	14	31·6	27·3	215					
16·2	1	64·0	64·0	260	14·1	2	56·0	54·7	238	12·0	3	69·0	67·4	257	16·2	7	23·1	16·8	204					
1430 hrs.					14·1	2	56·0	54·7	238	14·1	2	56·0	54·7	238	18·0	6	15·0	9·7	182					

TABLE V— MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds above 9.0 Km. above mean sea level

February 1956

n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.		
NAGPUR					POONA					TRIVANDRUM																
0830 hrs.*					1430 hrs.					1430 hrs.																
16	64.7	62.8	244	10.5	2	49.0	49.0	245	10.5	9	19.6	9.7	211													
9	63.9	63.0	245						12.0	6	29.5	15.2	196													
5	59.0	57.5	245		PORT BLAIR					14.1					4				27.5	20.9	208					
2	43.5	42.7	253		0730 hrs.					16.2					2				13.5	13.5	280					
1	42.0	42.0	250	10.5	1	19.0	19.0	175	10.5	1	2.0	2.0	010													
				12.0	1	46.0	46.0	155	18.0																	
1430 hrs.					1430 hrs.					UDAIPUR																
				10.5	3	7.0	1.6	168		1430 hrs.																
2	75.0	75.0	249	12.0	2	7.5	6.3	263		1430 hrs.																
				14.1	1	21.0	21.0	195	10.5	4	102.0	101.2	255													
2030 hrs.*									16.2	1	6.0	6.0	105													
14	63.4	61.4	244	18.0	1	6.0	6.0	190		VENGURLA																
11	60.6	57.5	249							1430 hrs.																
4	38.2	34.5	260		SANTACRUZ					10.5					1				30.0	30.0	290					
1	50.0	50.0	320		0830 hrs.*					VERAVAL																
				10.5	22	57.5	52.7	255		1430 hrs.																
NEW DELHI					12.0	19	51.2	47.3	255		1430 hrs.															
				14.1	11	61.0	59.1	253		1430 hrs.																
0830 hrs.*					16.2	2	86.0	82.0	260	10.5	1	48.0	48.0	345												
					1430 hrs.					VISAKHAPATNAM																
25	73.2	68.6	263	10.5	6	74.0	64.4	250		1430 hrs.																
21	82.0	78.9	261							1430 hrs.																
14	75.1	73.4	260		2030 hrs.					10.5				12	41.7	40.6	241									
5	62.4	61.4	259	10.5	19	67.0	62.8	250	10.5	7	41.7	40.2	245													
2	81.0	80.0	279	12.0	12	64.2	57.5	255	12.0	4	38.0	34.4	234													
				14.1	7	54.3	47.1	267	14.1																	
1430 hrs.					16.2	1	68.0	68.0	280																	
				18.0	1	58.0	58.0	280																		
18	87.7	83.7	268																							
10	93.9	90.3	266		TEZPUR																					
5	93.0	89.0	271		1430 hrs.																					
4	70.5	67.8	270		1430 hrs.																					
3	48.0	46.5	270	10.5	1	57.0	57.0	275																		
2030 hrs.*					TIRUCHIRAPALLI																					
					0730 hrs.																					
27	76.0	73.4	260	10.5	1	9.0	9.0	170																		
20	88.8	86.5	261	12.0	1	18.0	18.0	175																		
12	76.8	75.5	260	14.1	1	11.0	11.0	175																		
6	76.8	74.5	261		1430 hrs.																					
2	54.5	21.0	218	10.5	1	71.0	71.0	240																		

RADIOSONDE DATA

February 1956

During the month, observations of upper air temperature, pressure and humidity were made at 13 stations in India as given in the list below. For a detailed description of the instruments used a reference may be made to the I.M.D. Scientific Notes Nos. 112 and 113 (Volume IX)

LIST OF RADIOSONDE STATIONS IN INDIA

Serial No.	Name of station	Type of instrument used	Date of starting	Hours of routine observations in GMT during the month	Remarks
1	Allahabad	Clock type	1st October, 1954	03 and 15	
2	Bombay	Clock type	7th September, 1954	03 and 15	
3	Calcutta	Clock type	13th December, 1946	03 and 15	Fan type used from 13th December, 1946 to 30th November 1947.
4	Gauhati.	Clock type	22nd July, 1955	03 and 15	Shifted from Shillong
5	Jodhpur	Clock type	17th April, 1946	15	
6	Madras	Fan type	29th June, 1946	03 and 15	
7	Nagpur	Fan type	1st October, 1946	03 and 15	
8	New Delhi	Clock type	3rd December, 1943	03 and 15	
9	Poona	Fan type	24th April, 1944	15	
10	Port Blair	Fan type	4th December, 1949	15	
11	Trivandrum	Fan type	1st July, 1947	15	
12	Veraval	Fan type	3rd October, 1944	15	
13	Visakhapatnam	Fan type	8th December, 1946	15	

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(A) From Ascents at 03 Hours G. M. T.

February 1956

Standard surface height ft.	ALLAHABAD Surf. Pr. (1004 mb.)						BOMBAY (1011 mb.)						CALCUTTA (1014 mb.)						
	No. of Obs.	Ht. gpm.	Temperature in °A				No. of Obs.	Ht. gpm.	Temperature in °A				No. of Obs.	Ht. gpm.	Temperature in °A				
			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point	
Surface	25	98	289.8	297	285	282.2	29	9	294.0	301	290	289.2	28	6	293.3	299	288	287.0	
1000	25	132	..	..	..	..	29	108	..	..	..	..	28	124	..	..	..	..
900	25	1030	287.8	297	283	273.2	29	1027	294.3	299	287	278.7	28	1028	289.0	295	281	274.9	
850	25	1512	285.9	294	280	269.2	29	1518	290.6	295	286	277.4	28	1511	286.0	290	282	270.2	
800	25	2019	283.3	291	276	265.8	29	2033	286.9	290	282	275.9	28	2018	283.0	287	275	266.8	
700	25	3122	276.8	284	269	256.9	29	3143	279.0	284	273	267.3	28	3117	277.7	282	273	258.3	
600	25	4354	269.6	276	259	..	29	4392	272.9	279	270	257.2	28	4358	270.8	275	266	..	
500	24	5772	260.9	267	254	..	29	5829	263.8	271	258	..	28	5782	262.0	268	256	..	
400	24	7449	250.9	258	243	..	29	7524	253.4	260	247	..	28	7464	251.4	260	243	..	
300	15	9487	237.5	245	228	..	27	9594	239.0	247	228	..	28	9533	238.7	246	229	..	
250	13	10725	231.6	238	228	..	25	10863	231.8	240	224	..	25	10785	230.4	241	222	..	
200	12	12220	223.6	229	217	..	21	12329	221.5	230	212	..	21	12253	219.8	231	214	..	
175	6	13089	220.8	225	216	..	20	13181	215.2	226	206	..	15	13072	214.6	230	206	..	
150	6	14069	215.3	219	211	..	15	14146	210.7	219	202	..	7	14108	211.7	220	208	..	
125	5	15211	210.8	213	209	..	10	15272	206.4	212	195	..							
100																			
80																			
Surface	GAUHATI (1009 mb.)						MADRAS (1012 mb.)						NAGPUR (979 mb.)						
	No. of Obs.	Ht. gpm.	Temperature in °A				No. of Obs.	Ht. gpm.	Temperature in °A				No. of Obs.	Ht. gpm.	Temperature in °A				
			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point	
Surface	29	49	292.1	296	289	289.3	29	15	298.2	303	296	293.4	29	311	294.4	300	289	281.8	
1000	29	126	..	..	..	..	29	118	..	..	..	..	29	127	..	..	..	..
900	29	1023	287.6	291	282	281.9	29	1033	291.9	299	286	281.9	29	1035	292.1	297	287	277.3	
850	29	1505	283.7	288	279	278.3	29	1522	289.7	294	287	275.2	29	1523	289.5	296	284	274.2	
800	29	2007	280.2	285	275	274.1	29	2036	287.3	291	284	272.1	29	2036	286.1	289	281	271.2	
700	29	3091	274.1	281	268	269.9	29	3152	282.3	287	277	264.7	29	3144	278.9	283	273	263.3	
600	29	4321	269.6	276	262	261.7	29	4415	276.7	282	259	256.8	28	4391	272.9	278	267	254.1	
500	29	5738	260.4	267	255	..	28	5876	268.3	277	262	..	26	5833	265.2	269	261	..	
400	28	7407	249.8	257	243	..	28	7606	257.4	266	249	..	24	7535	254.6	261	249	..	
300	27	9470	239.0	249	230	..	27	9728	243.5	256	234	..	22	9632	240.5	246	235	..	
250	27	10728	231.6	244	227	..	24	10983	234.0	243	224	..	22	10896	231.7	236	225	..	
200	24	12219	222.6	239	216	..	22	12499	223.3	233	219	..	18	12392	221.6	231	214	..	
175	21	13089	218.6	237	211	..	20	13346	216.7	224	209	..	14	13273	215.7	223	210	..	
150	14	14085	214.7	236	207	..	19	14332	210.8	217	206	..	14	14241	209.9	216	206	..	
125	10	15219	211.5	231	202	..	14	15407	203.1	211	195	..	10	15376	205.7	210	200	..	
100	9	16589	206.7	230	198	..	13	16754	200.4	208	195	..	10	16816	200.1	203	192	..	
80	..	..	..	..	..	..	8	18014	198.8	204	193	..	5	18074	198.6	201	196	..

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(B) From Ascents at 15 Hours G. M. T.

February 1956

Standard pressure surface mbs.	ALLAHABAD Surf. Pr. (1001 mb.)						BOMBAY (1010 mb.)						CALCUTTA (1011 mb.)																	
	No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A															
			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point												
Surface	28	98	292.0	298	288	283.6	29	9	297.0	300	295	292.8	29	6	292.9	300	290	288.8												
1000	28	111	..	..	..	..	29	95	..	..	..	..	29	102	..	..	..	..								
900	28	1018	290.7	298	286	275.7	29	1020	296.2	301	289	281.7	29	1013	290.9	299	283	279.5												
850	28	1504	287.7	295	282	269.8	29	1515	292.3	297	287	280.0	29	1499	287.6	295	279	273.9												
800	28	2014	284.4	290	279	266.9	29	2033	287.7	292	282	278.0	29	2009	284.4	289	279	269.0												
700	28	3117	277.2	281	272	260.5	29	3147	279.2	284	273	269.5	29	3113	278.8	283	272	257.6												
600	28	4349	269.4	273	262	..	29	4307	272.6	277	265	257.0	29	4359	272.0	277	268	250.2												
500	28	5771	261.2	264	257	..	29	5831	263.9	270	253	..	29	5789	263.0	268	253	..												
400	27	7445	250.7	255	245	..	29	7522	253.7	261	243	..	29	7477	253.0	257	243	..												
300	23	9504	238.9	249	231	..	27	9601	239.7	249	230	..	27	9548	238.7	244	223	..												
250	17	10777	233.6	240	225	..	26	10861	232.1	239	222	..	25	10810	230.4	239	221	..												
200	14	12265	224.7	233	217	..	18	12355	223.3	234	214	..	19	12280	219.9	229	208	..												
175	13	13143	220.8	228	216	..	15	13230	218.2	230	211	..	12	13152	215.6	226	205	..												
150	12	14129	215.0	221	211	..	11	14197	213.7	227	201	..	7	14121	212.0	222	201	..												
125	6	15259	211.8	215	208	..	7	15427	211.4	225	198	..	1																	
100																														
80																														
GAUHATI (1006 mb.)																			JODHPUR (988 mb.)						MADRAS (1010 mb.)					
Surface	29	49	290.4	295	288	288.7	29	218	294.6	301	291	272.8	29	15	297.9	299	297	292.4												
1000	28	100	..	..	..	..	29	111	..	..	..	..	29	106	..	..	..	..								
900	28	1008	290.8	298	286	283.3	29	1022	291.9	298	286	268.0	29	1021	292.9	300	287	279.2												
850	28	1494	286.4	291	281	280.7	29	1508	287.4	293	282	265.6	29	1511	290.1	295	287	271.8												
800	28	2000	282.1	286	278	277.2	29	2015	283.5	288	277	264.6	29	2026	287.1	291	285	269.2												
700	28	3092	275.3	279	270	266.8	29	3110	276.1	282	269	257.0	29	3141	282.0	286	278	258.9												
600	28	4339	271.5	277	261	261.6	29	4340	268.2	274	262	..	29	4403	275.9	280	272	252.1												
500	28	5756	262.5	267	255	..	28	5750	259.1	264	252	..	29	5857	267.1	273	262	..												
400	28	7439	251.5	257	241	..	27	7409	247.7	253	245	..	29	7572	255.9	263	250	..												
300	26	9519	240.5	249	234	..	23	9439	234.4	241	227	..	24	9683	243.1	250	236	..												
250	25	10781	232.9	245	224	..	21	10681	227.8	234	219	..	24	10967	232.7	236	227	..												
200	24	12273	224.7	241	217	..	19	12162	223.4	231	218	..	18	12448	221.7	229	215	..												
175	16	13143	220.4	232	213	..	18	13028	220.3	228	215	..	16	13295	216.5	222	210	..												
150	13	14205	215.9	230	207	..	14	13993	215.4	223	210	..	16	14278	210.1	216	203	..												
125	9	15216	211.2	229	200	..	11	15139	210.0	220	205	..	13	15838	204.6	211	195	..												
100	8	16580	209.2	216	196	..	5	16478	205.0	208	200	..	8	16702	197.9	205	187	..												
80													7	17991	194.9	198	191	..												

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(B) From Ascents at 15 Hours G. M. T.

February 1956

Standard Pressure Surface mbs.	VISAKHAPATNAM Surf. Pr. (1006 mb.)																
	No. of Obs.	Ht. gpm.	Temperature °A														
			Mean	Max.	Min.	Dew Point											
Surface	29	48	297.3	299	296	290.0											
1000	29	100	..	..	..	..							
900	29	1017	293.7	299	288	278.4											
850	29	1508	290.7	297	285	274.1											
800	29	2023	287.1	293	283	272.2											
700	29	3136	280.8	284	277	262.9											
600	29	4393	275.8	279	271	248.1											
500	29	5845	267.1	273	261	..											
400	29	7557	256.5	264	245	..											
300	27	9660	242.3	251	233	..											
250	25	10961	233.6	243	224	..											
200	20	12391	220.2	236	203	..											
175	15	13268	214.9	226	203	..											
150	12	14273	208.6	212	192	..											
125	5	15400	204.6	210	201	..											
100																	
80																	

NOTE:—Number of observations refer to those of dynamic height.

Means are not worked out for temperature and dew point for the 1000 mb. surface and for dew point for standard pressure surfaces with temperature less than 273° A.

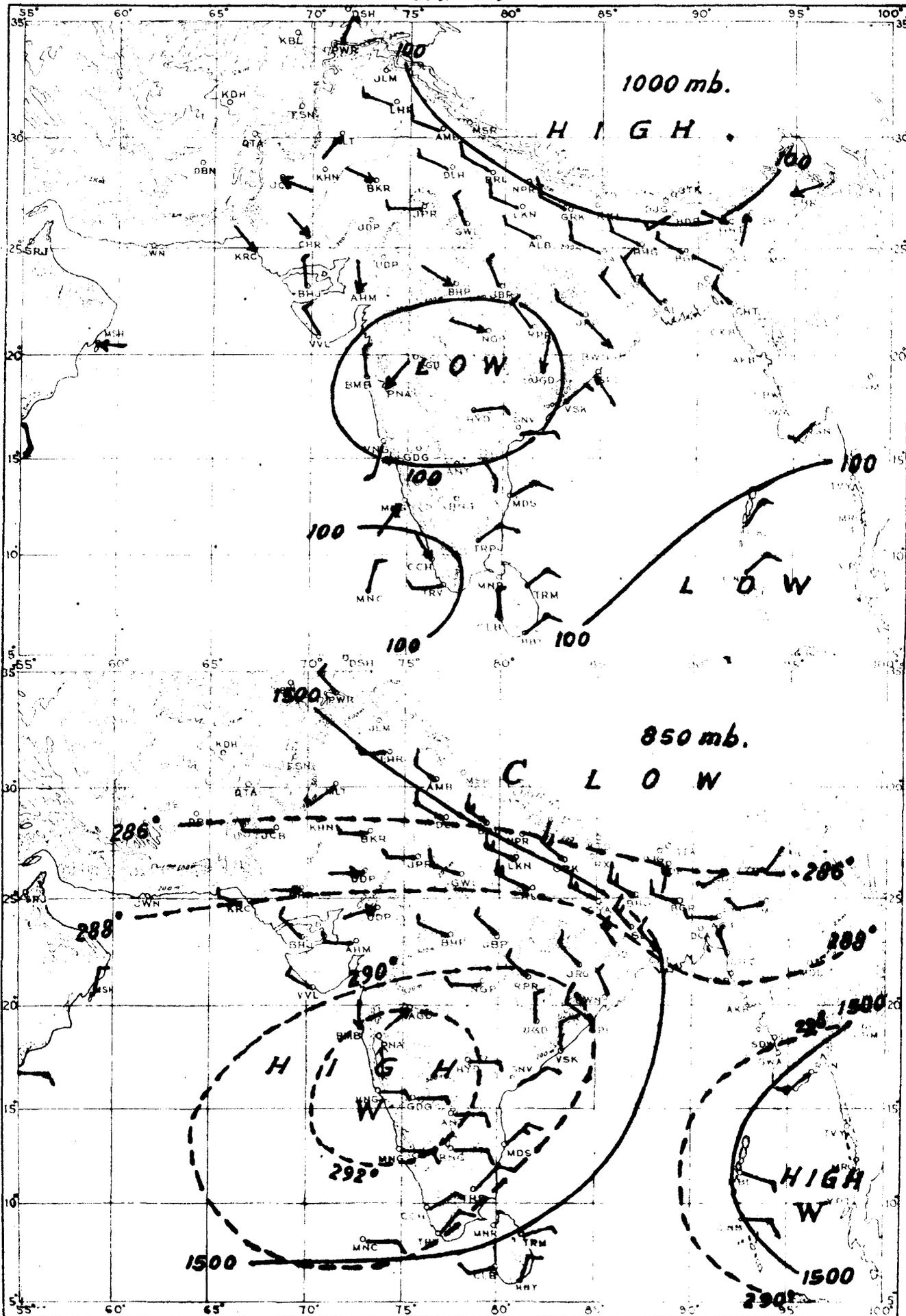
Means are not worked out for less than five observations at standard pressure surfaces.

MONTHLY MEAN CONSTANT PRESSURE CHARTS

I. Met. D.

FEBRUARY 1956

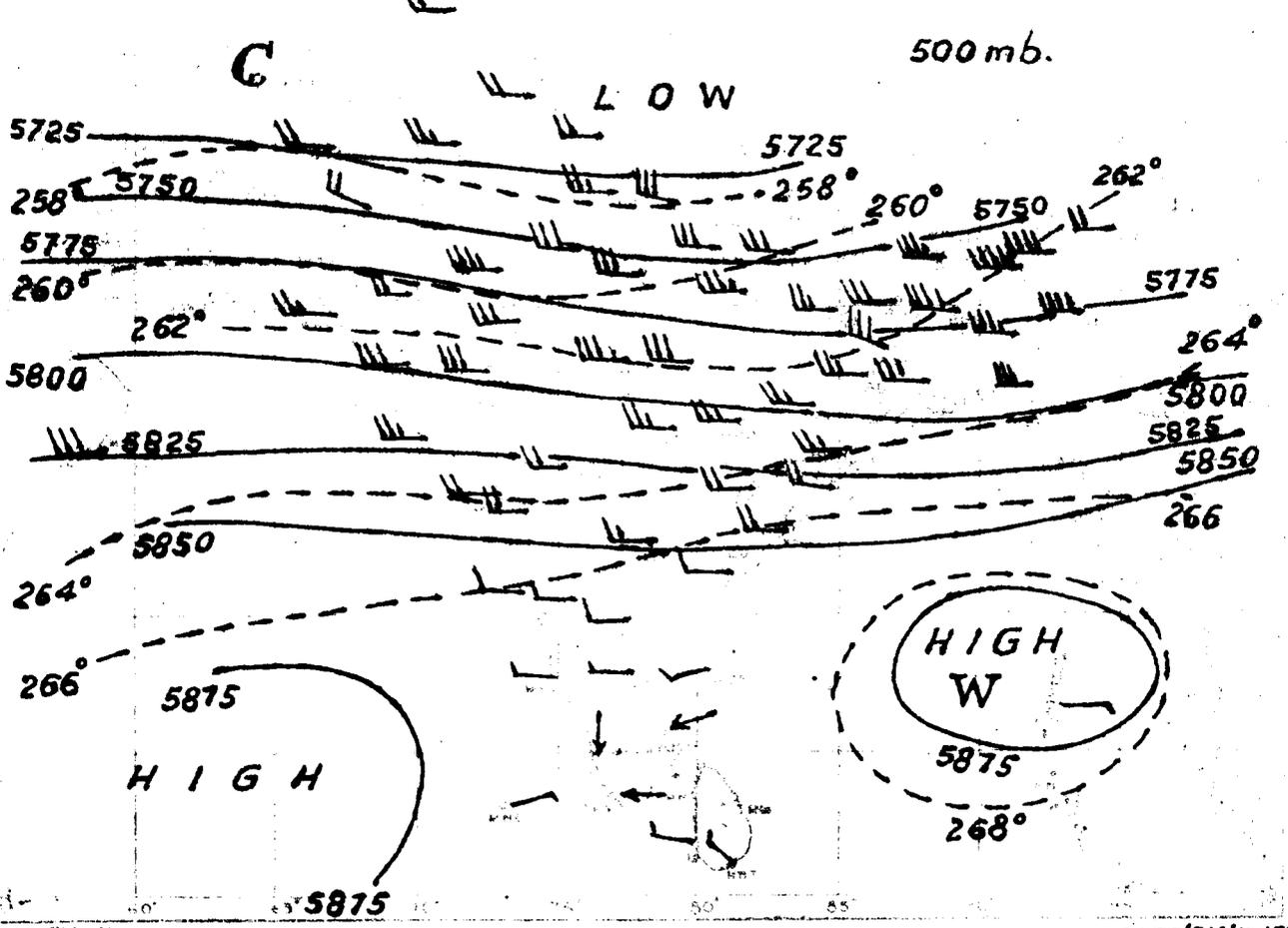
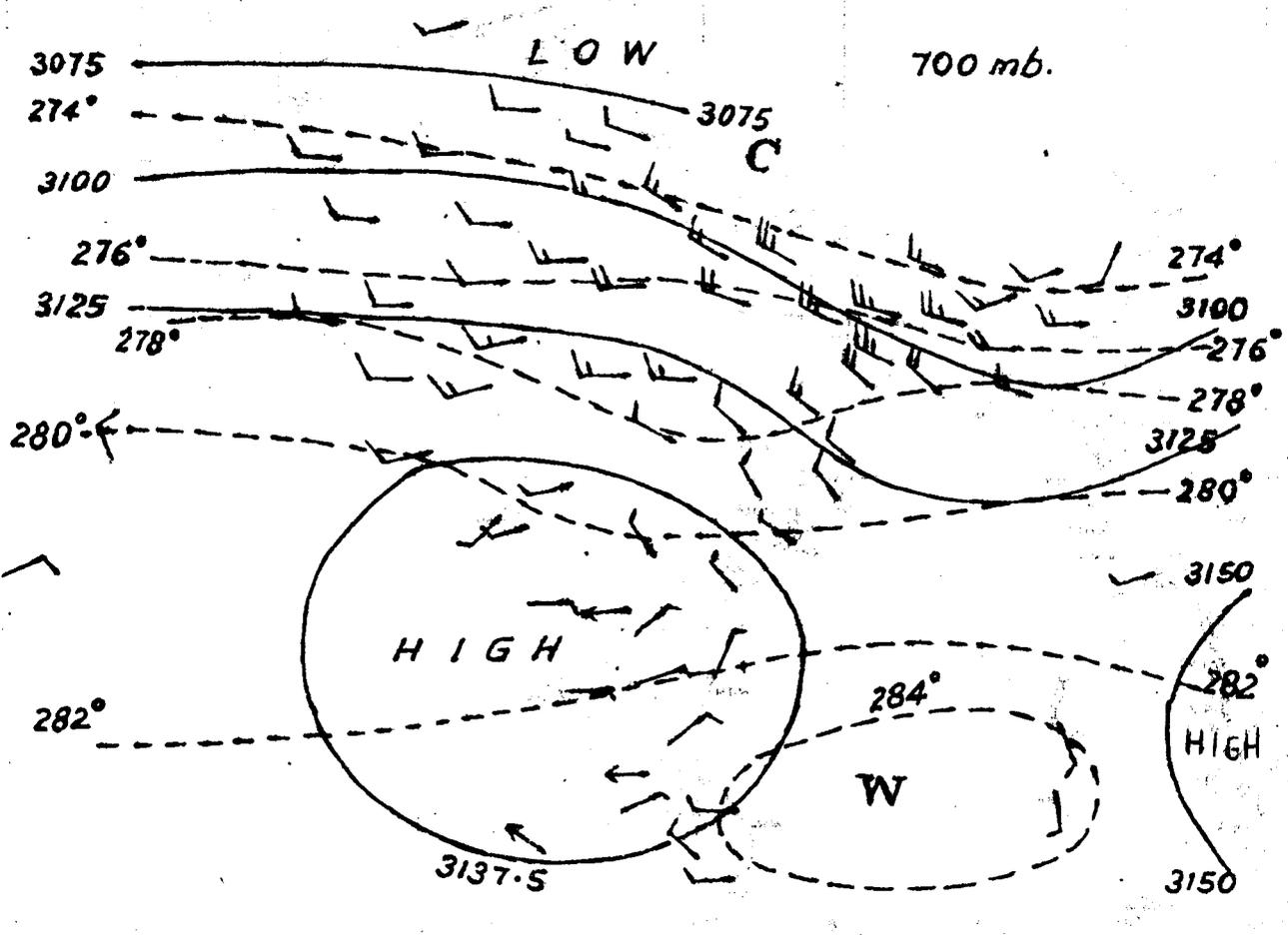
Plate I



RESULTANT WIND \dashrightarrow 5 Knots, \dashrightarrow 10 Knots, \dashrightarrow 50 Knots.

\cdots isotherms in degrees absolute.

--- Contours in geopotential metres



RESULTANT WIND 5 Knots 10 Knots 20 Knots

Isotherms in degrees absolute Contours in geopotential metres.

0000/014/12/58

INDIA WEATHER REVIEW, 1956

Monthly Weather Report March



Published by authority of the Government of India

Chief features—

The month of March witnessed a pronounced activity of western disturbances which came in quick succession and gave an excess of rainfall over north India. There were also a few hailstorms which destroyed crops at some places. The easterly waves over the southern parts of the country were, however, weak throughout the month and consequently the rain in the south was generally in defect.

Ten western disturbances moved across the northern parts of the country during the month. Of these, the last two were feeble and caused only cloudiness in Kashmir. Of the remaining eight, the two disturbances which affected the country towards the middle of the month were the most active. One of these appeared as a trough of low pressure over Sind and adjoining west Rajasthan on the 11th. It moved away across the Punjab (I) on the 13th. A deep current of moist air from the Bay of Bengal was induced in the field of the low pressure area on the 11th and 12th causing a good spell of thunderstorm activity in the Punjab (I), Uttar Pradesh and adjoining areas on 12th and 13th. Heavy rain occurred at a number of stations in the Punjab (I) on the 13th when Ambala recorded 4" and Pathankot, Dalhousie and Dharamsala 3" each. The other one lay as an extended trough over West Pakistan on the 14th and rapidly concentrated into a deep depression on the morning of the 15th with its central region over the south Punjab (P). Its centre moved to north Punjab (P) by the same evening. It, however, filled up by the next morning after inducing a 'low' over Southwest Uttar Pradesh and adjoining Vindhya Pradesh. Moving in an easterly direction, the induced low appeared over south Bihar on the 17th evening and became unimportant thereafter. It gave rise to another induced low over Orissa. This low moved across West Bengal and Assam between the 17th and 19th. In association with this system of disturbances, widespread thunder-rain occurred in Jammu-Kashmir, the Punjab (I) and Northwest Uttar Pradesh on the 15th and 16th. Local thundershowers occurred in Chota Nagpur and Gangetic West Bengal on the 17th and 18th and scattered thundershowers in upper Assam on the 18th and 19th.

Some of the thunderstorms associated with the western disturbances of this month were accompanied by strong winds and hail, causing damage to human life and property at a number of places. Some of the incidents reported in the newspapers are listed below.

(i) A 50,000 strong procession of pilgrims proceeding towards Pashupati temple in Khatmandu for Shivratri prayers was caught in a hailstorm on the evening of 7th March. A few of the hailstones were reported to be of the size of cricket balls.

(ii) At least two persons were killed and twenty injured in a thunderstorm that raged over Dibrugarh on the evening of 11th March. The roofs of some houses were blown off and the tea estates in the area suffered much damage.

(iii) A thunderstorm blew off the roofs of one entire colony in Hazaribagh in the evening of 17th March.

(iv) A hailstorm in Agra district destroyed the standing crops of few hundred farmers on the evening of 22nd March. On the same day, a hailstorm accompanied by heavy rain and violent winds uprooted several trees and electric posts at Gauhati in Assam where, apart from many that received minor injuries, at least four persons were seriously injured by the falling trees and flying iron roofings.

The details regarding the movement and activity of each western disturbance are given in the following table.

Statement of Western Disturbances during the month of March 1956

S. No.	Period	Course	Region affected	Nature of precipitation	Period	REMARKS
1	2nd-3rd	Extreme north of the country.	Jammu-Kashmir	Scattered rain or snow	2nd	
2	4th-6th	Baluchistan-Punjab (P) Punjab (I)-Kumaon hills	Jammu-Kashmir	Scattered rain or snow	4th and 6th	
3	7th-8th	Northern divisions of West Pakistan-extreme north of India	Jammu-Kashmir	Scattered light showers	8th	
4	8th-11th	South Persian Gulf-Baluchistan-Sind-Rajasthan-Punjab-Kumaon hills.	Plains of Uttar Pradesh	Local thundershowers	9th	
			Plains of the Punjab (I)	Scattered thundershowers	9th	
			Rajasthan	Scattered thundershowers	9th	
			Punjab-Kumaon hills	Scattered to local thundershowers	10th and 11th	
5	11th-13th	Sind-west Rajasthan-Punjab (I)	Rajasthan	Scattered or local thundershowers	11th and 12th	
			Punjab	Fairly widespread or local thundershowers	12th and 13th	
				Locally heavy falls in the hills	13th	
			Jammu-Kashmir	Fairly widespread thundershowers	13th	
			Kumaon hills	Fairly widespread thundershowers	13th	
	Plains of Uttar Pradesh	Fairly widespread or local thundershowers	12th and 13th			
6	14th-15th	South Punjab-north-Punjab.	Jammu-Kashmir Punjab, northwest Uttar Pradesh.	Widespread thunderstorm rain	15th and 16th	
	15th-17th	South Uttar Pradesh-south Bihar.	Rest Uttar Pradesh Punjab-Kumaon hills	Widespread light showers Fairly widespread thundershowers	16th 17th	Secondary Induced low
	17th-19th	Orissa-Gangetic west Bengal-Assam.	Chota Nagpur and Gangetic west Bengal. Upper Assam	Local thundershowers Scattered thundershowers	17th and 18th 18th and 19th	Induced low
7	19th-23rd	West Pakistan-Punjab (I)western Himalayas	Jammu-Kashmir Punjab hills Kumaon hills Plains of Punjab (I)	Local to fairly widespread rain or snow Local to fairly widespread thundershowers Local thundershowers Scattered thundershowers	20th to 23rd 20th, 21st, 23rd 22nd-23rd 21st.	
	22nd-23rd	North Rajasthan-north Madhya Pradesh-Bihar-Chota Nagpur.	Belt extending from east Rajasthan to Assam.	Scattered to local thundershowers	22nd and 23rd	Secondary
8	24th-26th	Baluchistan - extreme north of country.	Punjab hills	Local or fairly widespread thundershowers	25th-26th	
			Jammu-Kashmir	Local or fairly widespread thundershowers	26th	
9	28th-29th	Northern division of West Pakistan-Kashmir.	Kashmir	Caused cloudiness only.		
10	30th-31st	Northern divisions of West Pakistan-Kashmir.	Kashmir	Caused cloudiness only.		

Errata to Monthly Weather Report for March 1956.

Page No.	Station	Hour	Column	For	Read
<u>Table II</u>					
105	North Lakhimpur	-	20	Blank	17
	Tezpur	-	2	88.3	88.3
106	Allahabad (Bamrauli)	-	28	0	3
	Lucknow (Amausi Aerodrome)	-	5	26,3	26,31
	Bahraich	-	18	33	3.3
	Dehra Dun	-	16	Not clear	*4.3
	New Delhi	-	16	"	+0.7
	Ludhiana	-	14	"	13
107	Dras	-	12	+0.0	+0.06
	Ambikapur	-	6	602	60.2
108	Surat	-	19	-0.4	+0.4
109	Bhadrachallam	-	1	Bhadrachellam	Bhadrachallam
	Nellore	-	7	+01	+0.1
	Pamban	-	6	758	75.8
110	Mussooree	-	16	Not clear	+4.3
	Colombo	-	23	0	8
111	Bishungarh	-	1	Bishnugarh	Bishungarh
<u>Table III</u>					
112	Gauhati	1730	4	1007.	1007.8
114	Gopalpur	1730	26	Not clear	0
117	Hissar	1130	20	"	2
	Ferozepur	1730	4	100.0	1009.0
	Amritsar	0530	4	1010.	1010.6
	Ambala	1730	8	65.	65.3
	Srinagar	-	1	Sringgar	Srinagar
118	Jaipur* (Sanganer Aerodrome)	0230	27	2	3
	"	1130	3	1282	"
	Kotah	-	1	Kota	Kotah
	Gwalior (P.B.O.)	0230	9	50.1	50.0
121	Baroda	1730	8	69.	69.7
123	Nizamabad	0830	20	1	3
	Nellore	1730	11	9	59
125	Bangalore (Aerodrome)	1730	27	Blank	0
127	Trincomalee	0830	15	Not clear	4.6
129	Masulipatam	-	1	Masulipatnam	Masulipatam

 Page No. Station Hour Col- umn Ht.in km. For Read

Table IV

132	Bangalore	0130	V	3.0	Not clear	13.2
	Bareilly	0730	D	5.4	269	260
	Begumpet	0130	D	5.4	085	086
133	Bhuj	0730	v	3.0	16.6	16.8
134	Gauhati	0130	nVvD	0.6	Blank	30 6.4 2.0 101
	"	"	"	0.9	30 6.4 2.0 101	27 6.9 3.7 224
	"	"	"	1.5	27 6.9 3.7 224	23 11.4 9.3 251
	"	"	"	2.1	23 11.4 9.3 251	21 14.2 13.0 256
	"	"	"	3.0	21 14.2 13.0 256	15 15.4 13.7 265
	"	"	"	4.5	15 15.4 13.7 265	4 18.2 16.2 300
	"	"	"	5.4	4 18.2 16.2 300	Blank
138	Mangalore	0130	v	Surface	5.2	2.5
140	Poona	2030*	D	5.4	389	339
	Santacruz	0130	v	0.9	12.0	12.7

Table V

143	Gaya	1430	D	12.0	200	290
	Gwalior	1430	v	10.5	83.2	38.2
144	New Delhi	1430	n	12.0	86	8

PTV/-

An easterly wave moved across the south Bay of Bengal and the Comorin area between 16th and the 17th. Another wave was over the South Andaman Sea and adjoining southeast Bay Bengal on the 18th and moved away across Ceylon-Comorin area on the 19th. In association with these two waves, Travancore-Cochin had fairly widespread thundershowers on the 18th and 19th thundershowers on 16th, 17th and 19th.

During the beginning of the month the day temperatures gradually rose over the country and became appreciably to markedly above normal over Assam, south Rajasthan, the central parts of the country, the north Deccan (Desh), Gujarat and Saurashtra-Kutch between the 5th and 7th. Day temperatures fell in the northern parts of the country and became markedly below normal in Rajasthan between the 15th and 17th and appreciably below normal in north Gujarat, Saurashtra-Kutch, Madhya Bharat and west Uttar Pradesh on the 16th and 17th. Day temperatures remained below normal over large parts of the country up to 23rd March. Thereafter, they generally rose and became above normal in northwest India and the central parts of the country towards the end of the month.

The total rainfall for the month was in large excess in Assam, West Bengal, Chota Nagpur, Uttar Pradesh, the Punjab (I), Rajasthan and Malabar-South Kanara, in moderate excess in Madhya Bharat and in slight excess in the Bay Islands. It was normal in Orissa and Bihar, in slight defect in east Madhya Pradesh, in moderate defect in Jammu-Kashmir, Vindhya Pradesh and Deccan (Desh) and in large defect elsewhere except in Saurashtra-Kutch, the Konkan, Hyderabad, coastal Andhradesa and Rayalaseema where there was no rain. Averaged over the plains of India, the rainfall was in excess by 25%.

The mean maximum temperature was above normal in Vindhya Pradesh, Madhya Pradesh, Uttar Pradesh, Gujarat, Saurashtra-Kutch, the Konkan, Deccan (Desh) and North Hyderabad and normal elsewhere.

The mean minimum temperature was above normal in the Bay Islands, Assam, West Bengal, Bihar, Uttar Pradesh, West Rajasthan, Madhya Bharat, Madhya Pradesh, Gujarat and North Hyderabad and normal over the rest of the country.

The mean relative humidity in the morning was in excess in Bihar, Uttar Pradesh, the Punjab (I), east Rajasthan and Vindhya Pradesh, in defect in Hyderabad and Rayalaseema and normal elsewhere.

The mean cloud amount in the morning was in excess in Assam, east Uttar Pradesh, Jammu-Kashmir, Deccan (Desh), coastal Andhradesa, Tamilnad and Travancore-Cochin, in defect in west Rajasthan, Vindhya Pradesh, Madhya Pradesh, Gujarat, Saurashtra-Kutch, the Konkan, Rayalaseema, and Malabar-South Kanara and normal over the rest of the country.

Table I contains the divisional and sub-divisional means of rainfall, temperature, humidity and cloud amount for the 13 chief political divisions and the 28 sub-divisions. The stations used for these observations are used for preparing these means are given in the subsequent tables.

The highest maximum temperature given for any station in the accompanying tables is recorded within the 24 hours ending at 0830 hrs. I.S.T. of the date noted in the preceding column. Similarly the heaviest fall in 24 hours for any station denotes the amount recorded during the 24 hours ending at 0830 hrs. I.S.T. of the date given in the succeeding column.

POONA 5,

dated the 7th May 1957.

K. DAS,

for Director General of Observatories.

TABLE I—DIVISIONAL AND SUB-DIVISIONAL MEANS—MARCH 1956.

1	Rainfall (inches).	Percentage of normal.	Mean maximum temperature °F.	Mean minimum temperature °F.	Relative humidity. %		Cloud.		1	Rainfall (inches).	Percentage of normal.	Mean maximum temperature °F.	Mean minimum temperature °F.	Relative humidity. %		Cloud.	
					0830 hrs. I.S.T.	1730 hrs. I.S.T.	0830 hrs. I.S.T.	1730 hrs. I.S.T.						0830 hrs. I.S.T.	1730 hrs. I.S.T.	0830 hrs. I.S.T.	1730 hrs. I.S.T.
					6	7	8	9						6	7	8	9
Division									Division—contd.								
1. Assam (including Manipur & Tripura).	4.98 +2.35	189 ..	83.5 +0.2	63.3 +2.6	75 +2	64 ..	4.1 +1.0	4.1 ..	8. Madhya Bharat & Vindhya Pradesh.	0.31 -0.03	91 ..	92.9 +1.6	61.9 +1.8	41 +3	19 ..	1.1 -0.3	1.8 ..
2. West Bengal	2.28 +1.07	188 ..	91.3 +0.1	69.0 +2.5	65 +3	46 ..	2.1 +0.1	2.0 ..	9. Madhya Pradesh	0.27 -0.29	48 ..	97.5 +3.0	67.6 +2.6	36 -3	18 ..	0.7 -0.6	1.6 ..
3. Orissa	1.00 -0.06	94 ..	93.5 -0.1	71.0 +1.1	71 +5	53 ..	2.3 +0.3	2.0 ..	10. Bombay (including Saurashtra & Kutch).	0.03 -0.06	33 ..	95.0 +2.5	68.5 +1.8	56 -1	36 ..	1.1 -0.2	1.4 ..
4. Bihar	1.02 +0.47	185 ..	91.5 +0.9	64.0 +2.2	54 +4	35 ..	1.4 0	1.8 ..	11. Hyderabad	0 -0.34	0 ..	98.9 +2.0	71.5 +1.5	39 -7	17 ..	1.4 0	2.4 ..
5. Uttar Pradesh	0.83 +0.37	180 ..	89.0 +0.1	61.8 +2.5	58 +9	34 ..	1.8 +0.3	1.9 ..	12. Madras (including Travancore-Cochin).	0.13 -0.43	23 ..	93.1 0	74.0 +0.4	70 -2	51 ..	2.8 +0.6	2.5 ..
6. Punjab (I) (including PEPSU & Delhi).	1.79 +1.06	245 ..	85.0 -0.5	58.7 +1.6	69 +15	38 ..	2.5 +0.4	3.1 ..	13. Mysore	0.21 -0.28	43 ..	93.6 +0.7	68.3 +1.5	67 +5	21 ..	1.3 -0.2	2.6 ..
7. Rajasthan	0.48 +0.26	218 ..	90.2 +1.0	61.8 +1.7	48 +6	23 ..	1.4 -0.2	2.5 ..	Mean of India	0.70 +0.14	125 ..	92.6 +1.2	66.5 +1.8	55 +2	33 ..	1.7 0	2.1 ..
Sub-Division									Sub-Division—contd.								
1. Bay Islands	1.33 +0.21	119 ..	88.6 +1.1	74.1 +2.6	71 -1	77 ..	3.2 +0.3	2.5 ..	15. Madhya Pradesh, East.	0.69 -0.10	87 ..	96.9 +3.1	68.7 +3.1	43 -4	21 ..	0.9 -0.4	1.7 ..
2. Assam (including Manipur & Tripura).	4.98 +2.35	189 ..	83.5 +0.2	63.3 +2.6	75 +2	64 ..	4.1 +1.0	4.1 ..	16. Madhya Pradesh, West.	0.01 -0.41	2 ..	97.8 +3.0	66.9 +2.3	32 -3	16 ..	0.6 -0.7	1.6 ..
3. West Bengal	2.28 +1.07	188 ..	91.3 +0.1	69.0 +2.5	65 +3	46 ..	2.1 +0.1	2.0 ..	17. Gujarat	0.01 -0.03	25 ..	98.6 +2.7	66.9 +3.1	48 -1	20 ..	0.6 -0.4	0.5 ..
4. Orissa	1.00 -0.06	94 ..	93.5 -0.1	71.0 +1.1	71 +5	53 ..	2.3 +0.3	2.0 ..	18. Saurashtra and Kutch.	0 -0.09	0 ..	94.1 +2.6	66.7 +1.6	64 +2	37 ..	0.8 -0.6	0.4 ..
5. Chota Nagpur	2.41 +1.61	301 ..	92.9 +1.2	65.3 +1.9	52 +2	31 ..	1.7 +0.1	2.5 ..	19. Konkan	0 -0.03	0 ..	89.3 +2.5	72.4 +1.1	71 -1	63 ..	1.3 -0.5	1.5 ..
6. Bihar	0.41 -0.03	93 ..	90.5 +0.6	63.1 +2.4	55 +6	37 ..	1.3 -0.1	1.4 ..	20. Deccan (Desh)	0.09 -0.08	53 ..	98.7 +2.3	67.1 +1.7	42 -4	22 ..	1.4 +0.5	2.6 ..
7. Uttar Pradesh, East.	0.62 +0.27	177 ..	90.7 +0.3	62.8 +2.8	56 +8	33 ..	1.6 +0.3	1.5 ..	21. Hyderabad, North	0 -0.32	0 ..	98.8 +2.5	71.2 +2.0	31 -8	15 ..	1.5 +0.1	2.7 ..
8. Uttar Pradesh, West.	1.14 +0.53	187 ..	86.3 -0.3	60.2 +2.1	61 +10	34 ..	2.0 +0.2	2.7 ..	22. Hyderabad, South	0 -0.35	0 ..	98.9 +1.7	71.7 +1.1	45 -7	18 ..	1.3 0	2.2 ..
9. Punjab (I) (including PEPSU and Delhi).	1.79 +1.06	245 ..	85.0 -0.5	58.7 +1.6	69 +15	38 ..	2.5 +0.4	3.1 ..	23. Coastal Andhradesa	0 -0.35	0 ..	93.6 +0.2	73.0 -0.3	73 -1	57 ..	3.1 +0.7	2.0 ..
10. Jammu & Kashmir.	4.15 -1.49	74 ..	58.2 -1.8	40.2 +1.1	66 +2	56 ..	5.6 +1.5	6.4 ..	24. Rayalaseema	0 -0.18	0 ..	101.4 +0.9	74.1 +0.7	44 -9	18 ..	0.7 -0.3	1.3 ..
11. Rajasthan, West	0.57 +0.32	228 ..	89.3 +1.0	61.6 +2.6	53 +5	24 ..	2.1 +0.1	2.5 ..	25. Tamilnad	0.04 -0.55	7 ..	92.4 -0.5	73.0 +0.3	73 -2	47 ..	3.1 +0.6	2.7 ..
12. Rajasthan, East (including Ajmer).	0.39 +0.20	205 ..	90.9 +1.1	62.0 +0.9	44 +6	22 ..	0.9 -0.5	2.5 ..	26. Malabar and South Kanara.	0.89 +0.44	198 ..	90.3 +0.4	77.5 +1.5	75 +1	69 ..	1.5 -0.5	1.5 ..
13. Madhya Bharat	0.35 +0.10	140 ..	92.8 +1.2	62.4 +2.3	36 +1	17 ..	0.9 -0.2	2.0 ..	27. Mysore	0.21 -0.28	43 ..	93.6 +0.7	68.3 +1.5	67 +5	21 ..	1.3 -0.2	2.6 ..
14. Vindhya Pradesh	0.24 -0.24	50 ..	93.2 +2.3	61.0 +0.9	49 +6	24 ..	1.3 -0.4	1.5 ..	28. Travancore-Cochin	0.44 -1.33	25 ..	89.8 +0.7	77.9 +1.1	75 -1	68 ..	3.9 +1.8	4.7 ..

Note.—The entries in the second line for each division and sub-division indicate departures from normal.

TABLE II—SUMMARY OF OBSERVATIONS OF TEMPERATURE, RAINFALL AND WEATHER—MARCH 1956.

Division and station	Air temperature in °F								Rainfall in inches					No. of rainy days (0.10" or more)		Wind speed, miles per hour			Weather phenomena—No. of days with										
	Mean maximum	Departure from normal	Highest	Date	Mean minimum	Departure from normal	Lowest	Date	Total fall during 0830-1730 hours	Total fall in 24 hours	Departure from normal	Heaviest fall in 24 hours	Date	Total in the month	Departure from normal	Mean between 0830-1730 hours	Mean 24 hours	Departure from normal	Precipitation (>0.1" or more)	Snow or sleet	Hail	Thunder heard	Fog	Dust-storm	Ground frost	Gale	Squall	Lice squall	
																													2
HYDROMETEOROLOGICAL OBSERVATORIES—cont'd																													
Amnodar Catchment—cont'd																													
Hazaribagh . . .	87.8	...	94	27	62.4	...	58	2	0.09	1.44	...	0.98	18	4	...	8.0	5.9	...	5	0	0	3	0	0	0	0	0	0	0
Barhi . . .	91.2	...	98	27	64.8	...	55	2	0.25	0.65	...	0.35	13	3	...	6.5	3.9	...	6	0	2	9	0	0	0	0	0	0	0
Ramgarh . . .	93.5	...	100	27	60.4	...	47	2	0.45	1.44	...	0.40	22	5	...	5.0	2.6	...	8	0	1	10	0	0	0	0	0	0	0
Dhanbad† . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Panchet Hills . . .	94.1	...	101	30,31	67.2	...	56	3	0.22	1.25	...	0.62	23	4	...	8.2	6.0	...	5	0	0	0	0	0	0	0	0	0	0
Asansol . . .	...	...	...	...	...	...	...	...	...	1.70	...	0.65	12	6	...	...	...	...	8	...	...	...	...	...	...	...	...	...	...
Dhanwar . . .	...	...	...	...	...	...	...	...	...	0	...	0	...	0	...	...	...	...	0	...	...	...	...	...	...	...	...	...	...
Dumri . . .	...	...	...	...	...	...	...	...	...	1.24	...	0.38	17	4	...	...	...	...	8	...	...	...	...	...	...	...	...	...	...
Bishnugarh . . .	...	...	...	...	...	...	...	...	...	0.93	...	0.29	23	3	...	...	...	...	8	...	...	...	...	...	...	...	...	...	...
Palganj (Giridih) . . .	...	...	...	...	...	...	...	...	...	2.23	...	0.33	23	6	...	...	...	...	7	...	...	...	...	...	...	...	...	...	...
Chandwa . . .	...	...	...	...	...	...	...	...	...	1.39	...	0.33	22	4	...	...	...	...	7	...	...	...	...	...	...	...	...	...	...
Papunki (Chas Road)†																													
Manandi Catchment																													
Baranul . . .	97.6	...	104	30,31	63.3	...	56	3,4,5	0.07	1.12	...	0.54	10	2	...	2.3	1.3	...	4	0	0	7	1	0	0	0	0	0	0
Hirakud . . .	98.0	...	104	31	69.5	...	61	3	0.01	0.39	...	0.25	10	1	...	2.5	2.3	...	5	0	0	6	0	0	0	0	0	1	0
Barkachhar** . . .																													
Sonepur . . .	99.0	...	103	28,30,31	69.5	...	61	3	...	0.16	...	0.09	17	0	...	...	...	...	2	0	0	2	0	0	0	0	0	0	0
Ginabhar . . .	95.0	...	100	27	59.5	...	52	16	...	0.05	...	0.05	22	0	...	...	...	...	1	0	0	0	0	0	0	0	0	0	0
Arbeda Catchment																													
Punasa* . . .																													
Bagra Tawa . . .	98.2	...	105	31	62.9	...	51	2	0	0.03	...	0.03	9	0	...	3.1	3.0	...	1	0	0	1	0	1	0	0	0	0	
Thikri . . .	101.2	...	107	30,31	65.8	...	54	4	0	0	...	0	...	0	...	...	...	...	0	0	0	0	0	0	0	0	0	0	0
apti Catchment																													
Nandurbar . . .	100.8	...	110	31	73.0	...	64	2	...	0	...	0	...	0	...	...	...	...	0	...	...	...	...	...	...	...	...	...	...
Barmati Catchment																													
Jhadol . . .	88.9	...	100	31	55.3	...	43	1	...	0.40	...	0.40	10	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Dharoi . . .	97.6	...	106	31	65.2	...	55	4	0	0	...	0	...	0	...	...	...	...	0	...	...	...	...	...	...	...	...	...	...

†Observatory closed on 5th March, 1956.

†Observatory closed on 1st March, 1956.

**Temporarily closed.

*Data not available.

MONTHLY MEANS OF UPPER WINDS, MARCH 1956

During the month, observations of velocity and direction of upper winds were made at 51 stations in India. Out of these, at 42 stations all the observations were taken by means of pilot balloons and at 9 stations some observations were made by means of pilot balloons while the other observations by the radiowind method. Particulars of the stations, their co-ordinates and the approximate times of the regular pilot balloon and rawin ascents at each station are given in the table below. All radiowind ascents have been indicated by means of an asterisk (*) against the scheduled hours.

Data from ascents made at the scheduled time or within two hours on either side of the scheduled times of regular observations have been used for averaging.

Data up to 9.0 km. a. m. s. l. are given under Table IV and data above 9.0 km. a. m. s. l. under Table V.

In Tables IV and V :

n—represents the number of observations,

V—represents the mean wind speed in knots irrespective of direction,

v--represents the resultant mean velocity in knots,

D—represents the direction of the resultant mean wind in degrees East of North.

Mean and resultant winds are given in this publication for the following heights :—

Surface, 0.15 km. a. g., 0.3, 0.6, 0.9, 1.5, 2.1, 3.0, 4.5, 5.4, 6.0, 7.2, 9.0, 10.5, 12.0, 14.1, 16.2, 18.0, 20.0, 23.0, 26.0, 30.0 and 35.0 km. a. m. s. l. Of these the levels 1.5, 3.0, 5.4, 7.2, 9.0, 12.0, 14.1 and 16.2 km. a. m. s. l. are considered as the best approximations to the standard pressure levels 850, 700, 500, 400, 300, 200, 150, and 100 mb. respectively.

Particulars of Pilot Balloon and Rawin Stations in India

Station	Lat. N.	Long. E.	Height of Anemometer head a. m. s. l. in metres	Date of opening	Approximate times of flight (IST)		
Agartala	23°53'	91°15'	17	28th November 1951	0130	0730	1430
Ahmedabad	23°04'	72°38'	61	19th May 1928	0130	0730	1430
Amausi	26°45'	80°53'	126	20th November 1950	0130	0730	1430
Ambala	30°23'	76°46'	282	1st April 1941	0130	0730	1430
Anantapur	14°41'	77°37'	364	12th February 1946		0730	1430
Asansol	23°41'	86°59'	126	29th May 1942	0130	0730	1430
Baghdogra	26°38'	88°19'	138	7th June 1953		0730	1430
Bairagarh	23°17'	77°21'	524	26th February 1943	0130	0730	1430
Bamrauli	25°27'	81°44'	103	28th February 1930	0130	0830*	1430 2030*
Bangalore	12°58'	77°35'	936	19th May 1915	0130	0730	1430
Barcilly	28°22'	79°24'	180	12th January 1943		0730	1430
Begumpet	17°27'	78°28'	542	1st September 1929	0130	0730	1430
Bhagalpur	25°14'	86°57'	60	19th May 1950		0730	1430
Bhubaneshwar	20°15'	85°50'	45	5th December 1942	0130	0730	1430
Bhuj	23°15'	69°48'	111	14th September 1937	0130	0730	1430
Bikaner	28°00'	73°18'	228	18th October 1946	0130	0730	1430
Chikalhana	19°51'	75°24'	583	7th October 1951	0130	0730	1430
Cochin†	09°58'	76°14'	3	16th March 1942	0130	0730	1430
Dum Dum	22°39'	88°27'	11	14th May 1921	0130	0830*	1430 2030*
Gadag	15°25'	75°38'	650	3rd May 1943	0130	0730	1430
Gauhati	26°05'	91°43'	55	12th March 1955	0130	0830*	1430 2030*
Gaya	24°45'	84°57'	113	19th March 1937	0130	0730	1430
Gopalpur	19°16'	84°53'	24	15th February 1946	0130	0730	1430
Gorakhpur	26°45'	83°22'	83	5th January 1943		0730	1430
Gwalior	26°14'	78°15'	211	7th May 1938	0130	0730	1430
Imphal	24°51'	93°58'	798	8th March 1952		0730	1430
Jabalpur	23°10'	79°57'	402	30th July 1928	0130	0730	1430
Jagdalpur	19°05'	82°02'	561	25th March 1948	0130	0730	1430
Jaipur	26°49'	75°48'	387	6th June 1953		0730	1430
Jamshedpur	22°49'	86°11'	144	23rd July 1942		0730	1430
Jharsuguda	21°55'	84°05'	234	1st May 1944	0130	0730	1430
Jodhpur	26°18'	73°01'	228	15th October 1934	0130	0730	1430
Madras	13°00'	80°11'	29	8th April 1926	0130	0830*	1430 2030*
Mangalore	12°52'	74°51'	40	4th June 1928	0130	0730	1430
Masulipatnam	16°11'	81°08'	9	8th April 1942	0130	0730	1430
Minicoy	08°18'	73°00'	14	14th April 1941	0130	0730	1430
Mohanbari	27°29'	95°01'	110	1st June 1948	0130	0730	1430
Mussoorie	30°27'	78°05'	2050	3rd November 1955		0730	1430
Nagpur	21°09'	79°07'	316	23rd April 1943	0130	0830*	1430 2030*
New Delhi	28°35'	77°12'	227	20th October 1936	0130	0830*	1430 2030*
Poona	18°32'	73°51'	560	5th January 1925	0130	0730	1430 2030*
Port Blair	11°40'	92°43'	92	29th October 1945	0130	0730	1430
Raipur	21°14'	81°39'	308	15th July 1944	0130	0730	1430
Santacruz	19°05'	72°53'	12	14th May 1933	0130	0830*	1430 2030*
Tezpur	26°37'	92°47'	78	12th August 1932	0130	0730	1430
Tiruchirapalli	10°46'	78°43'	95	22nd June 1936	0130	0730	1430
Trivandrum	08°29'	76°57'	72	8th December 1928	0130	0730	1430
Udaipur	24°35'	73°42'	587	24th June 1947	0130	0730	1430
Vengurla	15°52'	73°38'	8	22nd November 1941	0130	0730	1430
Veraval	20°54'	70°22'	16	13th October 1941	0130	0730	1430
Visakhapatnam	17°43'	83°14'	9	24th September 1928	0130	0730	1430

* Radiowind ascents.

† Naval Meteorological Office.

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

March 1956

Station.	AGARTALA												AHMEDABAD											
	0130				0730				1430				0130				0730				1430			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	4.5	3.4	161	31	4.5	3.3	159	31	6.9	4.2	220	31	6.3	4.0	302	31	3.2	1.7	015	31	5.2	2.1	286
0.15 a. g.	28	11.2	9.7	205	29	8.5	5.3	170	31	9.3	6.8	228	31	19.5	12.2	310	31	16.4	8.0	001	30	7.4	4.1	283
0.3 a. m. s. l.	28	12.1	10.8	215	29	10.3	7.3	212	31	9.9	7.5	227	31	20.3	13.0	305	31	18.3	8.6	348	30	7.9	4.3	276
0.6 "	28	12.3	10.7	223	29	11.6	8.7	227	31	10.4	8.5	228	31	16.8	12.1	308	31	17.6	8.7	336	30	7.8	4.4	281
0.9 "	26	11.4	9.7	236	28	11.7	9.3	238	31	11.2	9.5	229	31	14.4	10.5	305	31	14.6	8.6	321	30	7.8	4.4	285
1.5 "	26	13.7	11.8	262	25	13.6	11.6	257	28	14.4	13.1	243	31	13.2	8.0	289	29	13.0	7.6	290	30	9.8	7.0	289
2.1 "	24	15.5	13.6	277	25	17.4	16.1	268	25	18.8	16.6	257	29	12.7	9.1	277	27	13.0	9.8	287	30	13.3	10.7	283
3.0 "	14	17.6	16.3	283	21	22.7	21.9	276	22	25.8	22.9	274	18	12.3	9.2	281	24	15.4	11.9	277	30	18.0	15.7	280
4.5 "	2	17.5	17.5	261	5	25.6	25.4	275	14	33.9	33.6	283	1	3.0	3.0	160	14	16.6	15.4	280	30	22.8	21.3	276
5.4 "	1	4.0	4.0	220	2	30.0	28.7	288	8	37.0	35.5	277					8	19.4	16.7	279	28	27.3	25.5	275
6.0 "	1	5.0	5.0	270					5	50.0	49.2	279					7	21.0	18.8	273	25	30.4	28.6	273
									2	55.5	55.5	275												
7.2 "																	4	22.7	20.9	275	15	32.1	29.6	277
9.0 "																	1	18.0	18.0	260	9	36.2	34.3	279

Station.	AMAUSI												AMBALA											
	0130				0730				1430				0130				0730				1430			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface.	31	4.9	2.7	328	31	4.9	2.2	324	31	9.3	6.4	308	31	7.5	3.3	355	31	5.6	1.1	356	31	7.4	2.5	344
0.15 a. g.	30	15.3	9.7	324	31	13.5	7.0	317	31	11.5	7.2	288	29	19.0	9.2	357	31	16.8	6.0	006	31	13.0	2.6	318
0.3 a. m. s. l.	30	15.4	10.3	326	31	13.7	6.8	323	31	11.6	7.4	287	29	10.4	4.8	358	31	8.9	5.9	360	31	9.0	2.7	315
0.6 "	30	15.5	7.7	285	31	14.6	8.9	311	31	11.7	7.7	288	29	18.2	8.5	354	31	18.5	4.5	351	31	13.7	3.1	335
0.9 "	30	14.6	11.6	307	31	15.5	11.1	299	30	12.1	8.0	289	29	17.5	6.8	344	31	17.9	4.1	350	31	14.0	3.9	296
1.5 "	29	15.7	14.2	290	29	17.1	14.5	288	29	13.9	10.6	286	28	13.0	6.3	319	30	12.2	3.9	321	31	14.4	2.8	286
2.1 "	26	21.1	19.5	280	29	20.1	17.2	292	29	17.9	15.5	292	27	12.4	7.0	299	29	15.0	4.3	285	28	13.1	6.2	303
3.0 "	16	20.9	19.7	275	25	22.0	20.7	278	28	23.8	22.0	287	23	12.3	8.8	300	25	13.0	7.2	279	28	15.3	9.7	275
4.5 "					8	30.1	28.4	285	26	32.8	30.0	280	1	10.0	10.0	280	12	15.9	15.2	276	26	19.6	16.2	280
5.4 "					3	25.3	24.5	275	22	36.2	34.0	273	1	19.0	19.0	240	11	16.2	15.2	273	21	24.9	21.8	277
6.0 "									18	35.9	32.6	271	1	32.0	32.0	260	8	18.1	16.8	274	20	30.3	26.9	279
7.2 "									8	40.6	37.7	283					2	25.5	25.4	246	13	38.0	35.1	283
9.0 "									3	56.7	52.0	297									8	49.4	40.8	284

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9·0 Km. above mean sea level

March 1956

Station	ANANTAPUR								ASANSOL								BAGHDOGRA							
	0730				1430				0130				0730				1430				0730			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	3·8	3·1	184	31	6·6	5·3	071	31	3·5	0·7	241	31	3·4	2·0	261	31	3·9	2·2	276	31	4·0	2·9	070
15 a. g.	31	9·0	7·3	200	30	9·2	8·2	071	31	11·0	2·0	253	30	10·0	5·6	252	31	7·7	4·6	270	31	10·2	8·7	072
3 a. m. s. l.									31	11·1	2·4	257	30	10·7	5·9	255	31	7·7	4·5	266	31	10·4	9·3	078
6 "	31	10·2	8·4	195	30	9·2	8·1	073	31	13·0	5·3	277	30	12·8	8·0	273	31	8·4	5·5	273	31	12·3	11·6	086
9 "	31	10·8	8·5	173	30	8·2	7·2	077	31	13·6	7·6	286	29	12·4	9·6	291	31	9·6	6·8	277	31	11·9	9·8	083
5 "	31	13·2	10·3	124	30	8·6	7·3	083	30	15·2	13·5	289	27	14·9	13·4	249	31	12·6	10·7	283	31	9·7	2·9	089
1 "	31	14·3	13·0	080	31	9·7	8·6	077	25	20·4	18·4	288	23	18·1	16·7	293	31	17·1	15·6	286	29	12·3	5·1	281
0 "	31	14·7	14·1	039	31	11·7	10·8	058	18	26·7	25·8	289	14	25·4	25·0	296	29	26·2	24·5	295	23	19·0	17·1	282
5 "	31	12·6	8·0	045	30	10·1	4·0	057	1	26·0	26·0	290	1	38·0	38·0	275	19	34·2	33·1	288	10	25·8	23·2	288
4 "	31	11·6	2·4	048	29	11·2	3·8	001									11	36·1	34·7	288	5	39·2	39·1	288
0 "	31	13·0	5·0	300	28	12·3	6·8	297									2	32·0	29·7	306				
2 "	27	17·7	15·6	270	26	17·0	13·4	272																
0 "	19	25·4	22·6	260	18	27·7	22·8	263																

Station	BAGHDOGRA				BAIRAGARH								BAMRAULI											
	1430				0130				0730				1430				0130			0830*				
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	4·4	1·1	135	31	3·7	1·5	005	31	2·0	0·9	078	31	8·8	7·4	285	31	3·6	1·4	332	26	5·1	2·5	255
15 a. g.	31	6·9	2·2	133	31	14·8	9·8	359	31	13·0	5·7	042	31	10·4	8·2	286	30	15·6	8·7	336	26	7·9	4·1	280
3 a. m. s. l.	31	7·0	2·4	143													30	16·8	10·0	329	26	8·5	4·6	265
6 "	31	8·0	1·8	172	31	14·3	8·9	360	31	11·6	4·6	038	31	10·3	8·2	285	30	17·7	10·9	315	26	11·7	9·3	265
9 "	31	8·9	3·5	219	31	13·6	8·9	338	31	12·5	5·2	014	31	11·3	9·2	285	30	16·2	10·8	295	26	13·6	10·6	279
5 "	31	11·4	6·4	252	31	13·0	11·0	293	31	12·3	8·4	311	31	11·5	8·5	287	23	14·8	10·2	277	26	17·0	14·0	280
1 "	30	13·0	11·3	269	31	16·0	13·9	275	31	17·0	15·2	279	31	13·0	9·9	283	14	22·6	21·3	270	26	20·2	17·7	277
3·0 "	25	16·4	15·3	287	28	18·0	16·3	270	31	22·0	20·1	273	31	19·8	16·7	270	6	31·3	30·2	251	26	26·0	23·7	275
4·5 "	8	25·0	24·7	288	1	40·0	40·0	240	17	20·2	17·8	285	27	27·9	25·6	282					25	29·0	26·2	265
5·4 "	4	24·3	23·7	305					7	20·4	16·9	306	26	31·0	27·9	280					25	34·7	30·2	270
5·0 "	3	14·3	14·3	327					6	20·2	16·9	294	24	34·8	31·0	279					25	34·2	31·8	270
7·2 "	2	18·5	18·5	331					2	22·0	22·0	284	21	37·3	34·6	284					22	39·3	36·6	262
9·0 "													10	32·7	29·1	281					14	40·0	37·8	255

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

March 1956

Station	BAMRAULI								BANGALORE												BAREILLY							
	1430				2030*				0130				0730				1430				0730							
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D				
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	9.4	6.1	293	31	4.5	2.9	275	31	5.8	5.7	118	31	4.5	3.5	130	31	7.3	6.5	088	31	4.6	1.3	311				
0.15 a. g.	31	12.0	9.0	292	31	7.2	4.5	295	31	15.0	14.3	124	31	12.2	9.0	155	31	10.8	9.9	081	31	15.5	4.7	327				
0.3 a. m. s. l.	31	12.2	9.4	292	31	8.0	5.0	295													31	13.8	5.3	335				
0.6 "	31	11.8	9.0	291	31	10.7	7.7	290													31	19.1	8.5	310				
0.9 "	31	12.3	10.1	291	31	13.2	10.7	284													31	18.3	10.5	308				
1.5 "	31	15.4	14.2	294	31	16.8	14.7	275	31	17.5	15.9	104	31	14.6	10.8	126	31	11.6	11.2	075	31	17.9	13.7	305				
2.1 "	31	19.5	18.2	295	31	20.2	18.2	271	30	13.7	12.9	069	31	16.0	15.4	071	31	12.5	12.1	072	29	17.1	14.1	301				
3.0 "	31	27.3	25.5	291	31	25.1	22.6	265	26	13.2	12.6	040	31	17.5	16.6	044	31	14.1	13.5	060	25	20.1	17.1	287				
4.5 "	23	35.5	33.8	276	31	31.3	28.1	270	13	11.5	7.7	062	29	14.0	10.4	062	27	12.5	8.0	074	11	25.5	24.6	263				
5.4 "	18	37.1	35.7	273	31	33.3	29.9	270	5	7.6	2.7	047	21	10.2	2.2	086	24	8.9	3.7	080	5	24.8	24.2	269				
6.0 "	16	39.2	36.9	269	31	34.8	31.0	270	3	9.7	5.6	288	21	10.5	1.7	258	24	9.4	1.4	342	1	4.0	4.0	320				
7.2 "	6	39.3	35.7	283	31	38.8	35.2	264					18	13.5	10.8	264	21	12.6	8.4	278								
9.0 "					21	49.1	45.7	260					11	27.2	24.5	250	15	22.7	18.0	263								

Station	BAREILLY				BEGUMPET												BHAGALPUR											
	1430				0130				0730				1430				0730				1430							
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	6.0	2.6	297	31	2.8	2.3	116	31	1.9	0.3	217	31	5.6	1.9	157	31	3.9	0.3	234	31	7.4	5.3	293				
0.15 a. g.	31	9.7	5.4	293	31	11.3	10.6	148	31	9.8	4.1	205	31	7.3	2.8	138	30	10.3	2.4	251	31	11.6	8.4	303				
0.3 a. m. s. l.	31	9.3	5.0	293													30	10.5	4.2	265	31	12.2	8.5	301				
0.6 "	31	10.3	6.0	293	31	6.8	5.7	133	31	5.6	2.0	203	31	7.0	2.5	146	30	11.3	7.5	273	30	13.8	11.6	288				
0.9 "	31	11.7	7.4	295	31	13.5	12.8	146	31	13.4	7.7	177	31	8.1	3.0	122	30	11.8	8.7	281	29	15.2	13.0	281				
1.5 "	30	12.8	8.7	296	31	9.6	4.3	119	31	12.5	6.3	161	31	7.5	2.4	098	27	15.4	13.4	285	26	17.4	16.0	277				
2.1 "	29	16.6	12.4	288	31	9.8	4.7	356	31	11.2	2.8	038	31	6.9	1.5	064	25	19.7	17.3	286	23	21.6	19.9	276				
3.0 "	28	21.5	18.2	283	31	11.9	9.8	337	31	11.2	7.8	360	30	8.4	0.9	296	14	23.3	20.8	288	18	26.3	25.9	284				
4.5 "	24	30.7	27.6	283	2	5.0	2.7	192	30	11.5	6.4	360	29	12.5	6.7	323	4	35.0	33.5	305	11	30.5	29.7	297				
5.4 "	19	31.9	29.8	280	1	4.0	4.0	085	30	14.4	7.6	340	28	14.7	9.5	304	2	27.0	26.7	314	8	30.2	29.6	302				
6.0 "	17	33.3	30.5	278					30	15.6	8.3	323	26	16.9	12.2	292	2	11.0	11.0	275	6	26.8	25.6	302				
7.2 "	10	33.6	30.9	266					14	21.6	16.2	284	25	21.4	18.2	288	1	13.0	13.0	225	1	16.0	16.0	325				
9.0 "	2	56.5	56.0	274					1	19.0	19.0	235	15	36.8	30.8	272	1	23.0	23.0	330								

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

March 1956

n	BHUBANESHWAR												BHUJ															
	0130				0730				1430				0130				0730				1430							
in I. S. T.																												
Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
ce	31	8.9	8.0	213	31	7.2	5.4	222	31	11.7	6.3	217	31	3.2	2.2	244	31	1.4	0.7	233	31	4.2	2.8	272				
a. g.	31	16.5	14.7	208	31	11.2	8.6	220	30	10.6	4.3	212	31	15.7	12.1	282	31	12.5	8.0	294	31	8.1	4.9	280				
m. s. l.	31	18.0	16.7	215	31	12.3	9.0	226	30	11.3	5.2	215	31	17.1	12.9	286	31	14.6	9.3	310	31	8.1	5.0	281				
..	29	17.7	16.4	222	30	13.5	9.5	229	30	10.0	5.3	225	31	19.5	14.4	291	31	19.5	12.5	311	31	8.8	6.4	280				
..	28	13.1	11.2	233	24	11.5	7.4	253	30	7.8	4.1	241	30	17.1	12.9	303	31	18.5	13.3	307	31	10.0	7.5	283				
..	28	10.9	8.3	276	22	11.2	9.6	303	29	8.9	6.7	290	29	14.8	11.6	298	31	17.1	14.3	292	31	13.8	11.6	281				
..	24	14.8	12.7	295	20	14.3	11.1	303	28	12.3	10.3	296	26	15.2	12.8	289	30	16.6	14.1	287	31	17.0	15.1	277				
..	10	17.2	15.6	313	17	15.5	12.5	320	26	18.2	17.0	310	24	17.5	15.5	276	29	19.3	16.6	287	31	22.2	20.1	276				
..					9	18.3	14.6	312	22	21.7	19.0	307	5	17.6	15.2	302	18	20.2	19.0	277	28	24.3	22.6	283				
..					3	16.3	13.2	272	19	24.6	21.9	302	2	11.0	11.0	279	15	23.3	21.3	278	28	27.4	26.7	283				
..					3	16.0	15.4	277	18	27.3	24.4	299	2	16.0	14.6	302	7	21.4	21.0	274	25	28.7	27.4	274				
..					1	15.0	15.0	314	7	34.1	33.3	273					3	17.7	17.3	290	17	30.2	28.8	277				
..					1	11.0	11.0	305	4	50.5	48.5	276					3	33.0	32.8	277	5	37.0	34.8	270				
n	BIKANER												CHIKALTHANA															
in I. S. T.	0130				0730				1430				0130				0730				1430							
Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
ce	31	1.9	0.3	155	31	1.1	0.5	154	31	2.5	1.7	285	31	3.9	2.6	309	31	3.2	0.4	245	31	4.5	2.7	287				
a. g.	31	15.0	7.9	073	31	14.3	7.6	115	30	6.7	2.7	281	31	14.7	10.1	344	31	10.8	5.2	058	31	7.2	3.8	292				
m. s. l.	31	12.8	7.2	076	31	11.5	6.8	125	30	6.3	2.5	257																
..	31	12.6	3.3	076	31	12.6	2.5	165	30	7.6	2.0	306																
..	31	10.9	4.3	265	31	10.8	1.4	274	30	7.9	3.0	292	31	18.6	13.9	349	31	13.3	6.8	024	31	7.1	4.2	287				
..	31	14.8	11.7	257	31	13.7	9.4	287	30	9.3	6.4	274	31	15.9	11.1	336	31	14.3	6.7	357	31	8.1	5.5	282				
..	29	16.3	13.9	268	31	16.5	12.6	287	30	12.2	10.8	274	31	11.6	6.2	297	31	11.3	4.5	286	31	8.3	5.6	288				
..	25	18.5	17.2	274	24	19.5	16.3	287	29	21.2	18.7	270	29	10.8	5.7	218	31	10.7	6.7	242	29	9.6	6.6	275				
..	6	23.0	21.8	266	17	25.4	23.1	281	27	30.8	30.1	271	6	15.7	4.2	258	28	14.7	10.6	288	28	14.6	10.1	289				
..					9	26.0	23.5	270	20	36.0	34.5	262	2	19.0	17.3	280	27	19.2	15.4	290	26	17.7	13.7	291				
..					5	28.4	26.0	250	14	35.9	34.9	281					26	21.0	16.5	287	24	21.9	17.9	292				
..					2	18.5	9.9	185	4	31.2	30.8	276					1	15.0	15.0	245	12	34.0	33.3	275				
..								1	54.0	54.0	260										2	35.5	35.5	292				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

March 1956

Station.	COCHIN												DUM DUM															
	0130				0730				1430				0130				0830.*				1430							
Time in I.S.T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	1.3	0.3	293	31	1.7	1.4	054	31	9.5	8.9	274	31	4.3	3.3	196	31	6.0	5.1	245	31	5.6	3.0	2				
0.15 a. g.	27	4.9	3.3	322	28	4.7	3.9	036	27	8.3	8.0	268	30	13.3	10.2	210	31	11.3	8.1	234	31	9.8	5.9	2				
0.3 a. m. s. l.	27	4.8	3.3	318	28	5.0	4.2	004	27	8.0	7.6	273	30	15.6	12.1	222	31	12.8	9.5	244	31	9.8	6.4	2				
0.6 "	27	4.4	3.5	308	28	4.6	3.7	346	27	5.2	4.0	287	30	16.2	12.3	242	31	12.4	8.7	258	30	10.7	7.3	2				
0.9 "	24	4.0	2.4	322	28	4.3	2.8	017	27	3.9	2.3	348	30	14.9	11.3	259	31	12.5	9.5	262	24	11.2	8.5	2				
1.5 "	20	5.3	4.4	098	27	6.0	5.3	064	27	10.2	9.9	068	30	14.7	12.7	288	31	12.6	10.8	273	29	12.3	9.9	2				
2.1 "	14	12.1	10.7	072	25	13.0	12.7	067	24	17.5	17.3	065	27	18.8	17.0	294	31	17.2	15.9	281	24	16.3	15.1	2				
3.0 "	10	16.7	16.5	069	24	21.7	16.9	063	20	18.7	17.8	068	10	16.7	15.7	295	31	22.5	20.1	284	28	25.0	24.0	2				
4.5 "	2	9.0	8.5	086	12	12.4	11.1	062	17	11.3	9.8	091					30	26.6	25.3	283	21	30.4	29.9	2				
5.4 "					7	8.5	5.4	116	16	11.0	8.1	092					30	29.2	28.0	276	18	29.8	29.1	2				
6.0 "					3	9.0	2.6	093	15	9.7	6.6	094					30	30.8	29.0	275	17	32.0	30.9	2				
7.2 "					2	5.5	5.5	315	11	9.8	3.8	083					29	37.7	35.7	267	10	35.0	34.0	2				
9.0 "					1	13.0	13.0	240	7	10.0	6.3	218					30	56.2	54.3	267	3	50.7	49.8	2				

Station	DUM DUM				GADAG												GAUHATI											
	2030 *				0130				0730				1430				0130				0830 *							
Time in I.S.T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	5.7	4.4	199	31	7.8	4.2	222	31	5.2	3.9	214	31	5.7	4.3	087	31	4.3	2.7	050	30	5.2	3.0	1				
0.15 a. g.	31	13.0	10.5	158	31	14.6	4.3	262	31	9.8	3.0	221	31	3.6	6.5	074	30	8.3	4.8	081	29	6.8	3.7	1				
0.3 a. m. s. l.	30	12.3	10.2	208													30	7.6	4.1	069	29	7.3	3.0	1				
0.6 "	30	10.8	8.9	220																	29	8.6	0.7	1				
0.9 "	30	11.0	9.1	242	31	14.1	1.5	315	31	9.9	3.0	098	31	8.5	6.3	073	30	6.4	2.0	101	28	10.4	3.2	1				
1.5 "	30	13.0	10.7	263	31	13.0	7.2	100	31	13.9	7.8	121	31	5.9	3.7	075	27	6.9	3.7	324	27	14.8	12.5	1				
2.1 "	30	16.0	13.7	276	31	11.0	9.2	101	31	11.8	8.1	077	31	7.0	4.9	071	23	11.4	9.3	251	27	18.6	16.3	1				
3.0 "	30	24.9	23.5	295	30	11.0	8.4	070	31	12.0	10.3	053	29	9.6	7.7	062	21	14.2	13.0	256	27	24.7	23.5	1				
4.5 "	31	27.7	26.4	289	11	10.9	5.8	022	29	12.5	5.1	049	27	10.6	5.9	042	15	15.4	13.7	265	27	32.6	30.8	1				
5.4 "	31	31.1	29.8	282	5	10.0	6.8	303	27	10.7	4.3	324	23	10.7	3.9	360	4	18.2	16.2	300	26	34.3	33.1	1				
6.0 "	31	33.1	31.3	280	3	15.3	14.6	296	26	13.3	8.0	303	19	12.7	5.3	321					26	36.8	35.7	1				
7.2 "	31	38.5	36.4	273	1	30.0	30.0	275	8	20.0	19.8	262	17	19.2	14.1	281					24	44.8	42.7	1				
9.0 "	30	55.0	52.9	270					3	25.3	24.8	252	7	41.6	32.6	268					21	55.2	52.9	1				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

March 1956

n.	GAUHATI								GAYA												GOPALPUR							
	1430				2030*				0130				0730				1430				0130							
in I. S. T.																												
Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
e	31	5.7	2.9	337	29	4.9	2.1	110	31	1.5	0.5	206	31	3.4	2.1	246	31	9.3	7.8	295	31	10.0	9.4	214				
l.g.	29	7.0	2.7	356	27	7.5	2.4	118	31	10.7	3.9	283	31	10.4	7.3	260	31	12.5	10.8	295	31	19.3	19.0	212				
m.s.l.	29	7.5	2.4	352	27	7.4	2.1	121	31	11.1	4.3	301	31	11.0	7.5	266	31	12.9	10.9	296	31	19.5	19.0	216				
"	29	7.5	2.9	313	26	7.9	1.4	208	31	13.7	7.4	305	30	10.8	7.7	290	31	12.8	11.1	297	30	16.4	15.8	219				
"	29	9.5	6.4	266	26	8.9	3.4	242	31	14.4	10.7	300	30	12.5	10.0	292	31	12.6	10.9	296	30	12.8	11.8	223				
"	27	14.6	13.6	245	26	11.3	9.7	238	30	15.1	13.7	292	30	16.9	14.6	293	31	15.5	13.7	289	30	10.2	7.8	245				
"	24	19.1	17.7	231	26	16.3	15.5	274	28	19.0	17.4	284	28	22.6	20.7	291	27	18.0	16.4	282	29	12.1	9.0	289				
"	17	19.5	18.2	240	28	21.9	20.8	257	18	26.3	26.0	280	24	26.8	25.4	291	28	27.4	25.7	285	22	16.5	14.2	313				
"	13	27.2	24.8	272	28	33.9	32.5	270	2	19.5	19.4	294	8	31.7	29.9	292	21	34.4	32.8	284	3	20.7	18.3	317				
"	8	32.3	30.0	274	28	38.4	36.5	277	1	29.0	29.0	305	5	26.6	25.2	297	17	34.2	32.1	288								
"	8	33.7	32.3	277	26	38.7	36.8	278					2	20.5	17.7	295	11	28.5	26.8	279								
"	2	47.5	16.4	228	26	43.1	40.1	274					2	19.5	18.9	305	6	32.5	27.4	285								
"					21	58.1	56.0	277					1	23.0	22.8	305	1	35.0	35.0	265								
n.	GOPALPUR								GORAKHPUR								GWALIOR											
in I. S. T.	0730				1430				0730				1430				0130				0730							
Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
e	31	7.2	5.5	220	31	12.7	11.5	187	31	2.2	0.8	323	31	4.2	2.2	300	31	2.4	1.0	301	31	3.2	1.5	310				
l.g.	31	15.1	10.5	215	31	20.4	18.8	182	31	11.5	4.4	333	31	9.0	4.7	284	31	11.6	4.7	021	31	10.5	3.0	301				
m.s.l.	31	14.2	12.9	220	31	17.4	15.0	186	31	13.2	5.4	329	31	9.3	4.9	285	31	8.8	2.7	003	31	8.0	3.1	295				
"	31	12.4	11.4	223	31	10.1	7.2	194	31	12.6	7.0	305	31	10.5	6.1	290	31	12.8	4.6	351	31	13.9	3.0	314				
"	31	11.1	8.9	231	31	7.4	2.9	271	31	13.5	9.1	299	31	10.8	6.2	291	31	12.3	7.0	302	31	13.6	5.5	301				
"	31	10.1	6.5	280	31	9.1	6.1	299	30	15.6	12.4	290	31	12.8	10.0	291	29	14.0	12.8	290	31	14.6	12.0	299				
"	30	12.5	9.0	319	31	11.9	9.9	309	27	17.5	14.8	293	31	17.9	15.4	290	29	18.5	17.1	284	30	19.2	17.9	288				
"	29	13.2	11.4	326	30	15.8	14.2	312	21	24.0	22.2	287	29	24.6	23.7	292	23	22.5	20.6	277	27	23.1	21.8	284				
"	21	15.5	12.3	322	29	17.5	13.9	303	5	31.2	28.2	289	26	35.9	33.2	285					15	25.2	22.2	275				
"	17	14.1	10.6	291	28	18.6	16.0	283	3	23.3	23.3	291	19	36.8	34.8	274					11	27.8	24.3	277				
"	16	18.0	13.5	288	27	22.4	19.5	282	1	26.0	26.0	290	13	34.3	32.9	271					9	30.0	26.7	283				
"	6	22.8	22.5	265	14	27.3	25.4	272					7	30.3	34.3	271					1	34.0	34.0	255				
"	2	28.5	27.3	258	5	34.4	32.7	259																				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9·0 Km. above mean sea level

March 1956

Station.	GWALIOR				IMPHAL								JABALPUR											
	1430				0730				1430				0130				0730				1430			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	4·8	2·9	328	31	1·6	1·1	155	31	7·1	6·1	245	31	1·6	0·8	169	31	0·9	0·4	132	31	4·7	2·4	285
0·15 a. g.	31	9·3	5·9	315	31	3·2	1·9	158	30	10·0	9·1	247	31	12·0	3·9	051	31	7·7	2·6	133	31	9·5	6·1	291
0·3 a. m. s. l.	31	8·0	5·0	317																				
0·6 "	31	10·3	7·0	302									31	13·0	4·1	036	31	8·9	2·3	110	31	9·7	6·5	291
0·9 "	31	10·5	7·7	291	31	3·3	2·0	157	30	9·6	9·1	246	31	14·5	5·0	336	31	12·4	3·4	010	30	9·1	6·7	297
1·5 "	31	12·9	10·7	285	31	9·5	8·0	253	30	14·3	14·0	257	31	13·8	9·5	293	31	14·7	9·8	307	30	10·9	8·4	295
2·1 "	31	16·6	12·5	257	31	16·7	15·6	265	28	16·8	16·3	258	29	17·8	14·9	284	30	18·6	16·3	294	31	14·0	11·7	284
3·0 "	30	23·6	20·6	282	25	25·7	24·0	272	24	24·8	23·9	266	26	23·0	19·1	271	27	23·8	20·2	282	31	18·8	16·7	281
4·5 "	25	32·6	30·1	279	12	24·8	22·1	293	9	30·0	29·5	275	2	21·0	20·9	318	13	23·1	19·7	284	29	28·8	26·3	281
5·4 "	25	36·1	33·7	279	5	32·4	29·2	273	6	36·3	34·5	267	1	28·0	28·0	305	4	19·3	15·8	287	25	28·8	26·2	295
6·0 "	23	38·2	36·1	281	5	40·4	37·6	280	5	38·8	37·8	264	1	21·0	21·0	320	1	27·0	27·0	310	21	32·1	28·5	295
7·2 "	17	44·6	42·4	280	1	32·0	32·0	285	1	35·0	35·0	280									16	33·7	29·3	295
9·0 "	13	43·3	41·2	269																	7	42·9	41·1	285

Station	JAGDALPUR								JAIPUR								JAMSHEDPUR							
	0130				0730				1430				0730				1430				0730			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	3·1	1·9	211	31	1·9	1·1	197	31	3·4	1·8	256	31	3·2	1·9	048	31	7·1	4·3	286	31	1·8	1·0	290
0·15 a. g.	31	13·4	8·5	212	31	8·0	6·1	203	31	7·4	3·6	266	31	11·4	4·8	039	31	9·1	6·2	285	31	5·6	3·4	274
0·3 a. m. s. l.																					31	5·8	3·0	274
0·6 "	31	6·9	4·5	210	31	5·2	3·6	205	31	5·7	2·9	266	31	12·4	4·0	030	31	9·9	6·6	283	31	8·2	3·0	272
0·9 "	31	13·9	8·1	219	31	11·3	7·7	215	31	7·9	3·9	273	31	13·0	6·7	288	31	10·5	6·6	276	31	6·5	4·0	287
1·5 "	31	10·3	3·8	281	31	9·4	3·1	238	31	8·0	4·4	277	31	16·1	12·2	284	31	12·2	8·1	281	31	13·2	9·7	281
2·1 "	31	8·7	5·0	315	31	10·1	5·6	325	31	8·6	6·1	297	30	19·2	16·7	280	30	15·4	10·6	280	31	18·0	15·6	280
3·0 "	31	11·5	8·8	320	31	12·8	10·0	328	31	8·9	6·7	310	26	21·3	19·6	279	26	22·2	19·0	282	26	24·7	23·0	295
4·5 "	9	11·8	9·4	298	29	13·7	10·4	323	30	13·3	9·7	307	11	25·6	23·6	270	18	28·8	28·8	286	9	26·3	25·4	290
5·4 "	2	11·0	10·9	268	26	14·3	8·5	309	27	16·4	12·4	299	5	26·2	23·5	270	16	33·2	31·6	277	2	33·0	18·7	268
6·0 "	1	16·0	16·0	281	21	15·1	12·4	291	23	19·7	16·2	300	2	21·5	19·5	244	13	34·7	33·1	272				
7·2 "					12	25·0	21·3	276	16	27·9	26·1	282					4	38·3	36·7	281				
9·0 "					1	25·0	25·0	285	5	44·6	38·3	285					2	32·5	30·0	284				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

March 1956

Station	JAMSHEDPUR				JHARSUGUDA								JODHPUR											
	1430				0130				0730				1430				0130				0730			
Direction in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	3.6	1.7	290	31	3.9	2.5	039	31	4.0	2.9	043	31	5.9	4.5	271	31	5.5	4.1	032	31	4.2	1.9	052
5 a. g.	31	6.7	3.5	300	31	9.2	5.3	042	31	8.0	5.1	059	31	8.4	6.3	277	31	15.2	6.8	036	31	12.3	4.7	080
a. m. s. l.	31	6.8	3.6	294	31	11.0	4.0	038	31	10.5	5.4	069	31	8.6	6.9	274	31	12.9	5.7	037	31	9.5	4.4	069
"	31	7.7	5.1	283	31	12.6	1.7	006	31	13.0	2.4	052	31	8.9	7.1	273	31	14.6	4.8	036	31	12.5	1.6	360
"	31	8.2	5.7	280	30	12.8	6.9	302	31	13.0	3.6	321	31	9.3	7.8	275	31	12.6	4.1	287	31	11.2	4.4	301
"	30	12.4	10.8	281	29	14.0	9.5	273	31	15.0	10.5	292	31	10.9	9.5	274	30	13.1	10.6	270	31	13.2	9.8	279
"	30	18.1	17.0	285	30	15.7	13.3	281	31	17.4	15.3	289	31	14.3	12.9	280	27	17.7	15.6	268	28	14.6	12.4	290
"	29	25.5	24.2	292	19	21.9	17.9	294	26	23.2	20.9	295	28	21.0	18.7	296	20	20.2	17.5	274	23	18.2	15.6	277
"	27	31.3	29.2	287	2	23.5	23.5	291	4	23.0	22.6	316	25	26.5	23.1	301	1	16.0	16.0	290	12	19.8	18.5	278
"	24	33.0	30.3	285					3	25.3	24.5	320	17	30.5	27.6	299	1	17.0	17.0	290	9	24.1	22.4	268
"	16	31.3	29.0	289					1	23.0	23.0	345	7	30.5	28.3	303	1	17.0	17.0	285	6	26.6	25.0	263
"	3	37.0	36.5	298									2	51.5	51.5	280					1	23.0	23.0	246
"																					1	26.0	26.0	266

Station	JODHPUR				MADRAS																			
	1430				2030*				0130				0830*				1430				2030 *			
Direction in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	6.4	3.9	279	15	4.1	1.9	330	31	3.8	2.3	185	31	5.1	4.3	210	31	8.2	7.3	130	30	7.2	6.6	143
5 a. g.	28	7.1	3.6	272	15	6.1	2.4	275	31	9.3	8.6	159	31	7.1	5.7	198	31	10.2	9.5	133	30	10.5	10.2	139
a. m. s. l.	28	7.2	3.8	286	15	5.1	1.6	300	31	9.5	8.9	156	31	7.5	6.1	184	31	9.6	8.9	146	30	10.5	9.9	139
"	27	7.1	4.5	267	15	7.7	4.5	295	31	9.2	8.3	207	31	8.4	7.6	163	31	7.8	5.5	150	30	10.2	9.4	132
"	28	7.0	5.1	266	14	9.4	4.5	294	31	9.1	7.6	141	31	9.8	8.5	140	31	7.3	4.3	137	30	9.9	8.7	120
"	28	9.1	7.1	270	15	13.2	8.9	280	31	10.7	9.6	097	31	13.6	12.1	093	31	12.0	10.8	083	30	12.4	11.3	087
"	28	12.6	10.7	277	15	16.1	12.0	278	31	13.9	13.3	069	31	17.2	15.7	070	31	16.3	15.3	116	30	16.1	15.1	067
"	27	20.4	19.4	276	15	22.7	20.3	265	25	15.2	14.3	046	31	17.6	16.1	055	31	16.3	15.6	050	30	17.8	17.0	048
"	23	31.0	30.2	277	15	29.9	28.8	275	7	10.9	4.6	061	30	12.7	10.5	066	30	10.3	7.1	060	30	11.4	7.9	055
"	20	33.4	32.1	279	14	34.6	32.3	275					30	11.5	5.1	082	30	10.4	2.0	060	30	10.0	3.7	354
"	18	35.1	33.9	284	13	37.1	34.3	280					30	10.9	7.1	189	30	11.2	2.6	295	30	11.5	4.1	310
"	13	35.8	34.3	285	12	40.4	39.0	272					29	16.3	12.4	256	29	14.1	12.2	265	30	18.2	13.4	260
"	7	33.9	32.8	295	9	59.7	58.4	275					23	24.9	20.3	250	24	21.4	18.3	250	23	26.4	20.5	258

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

March 1956

Station	MANGALORE												MASULIPATNAM											
	0130				0730				1430				0130				0730				1430			
Time in L. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface.	31	4.2	5.2	050	31	4.3	3.5	090	31	9.0	7.9	271	31	4.2	3.6	181	31	2.4	1.7	196	31	8.3	7.9	161
0.15 a.g.	31	5.3	3.0	350	31	5.9	4.5	052	31	10.5	10.1	273	31	12.1	11.5	180	31	8.3	7.7	181	31	9.2	8.8	170
0.3 a.m.s.l.	31	4.8	3.1	328	31	4.3	2.2	342	31	10.3	9.5	272	31	13.7	13.1	181	31	9.9	9.3	181	31	8.8	8.4	180
0.6 "	31	5.1	2.9	330	31	4.3	1.1	325	31	6.6	4.0	268	31	13.0	12.4	179	31	11.8	11.1	183	31	7.7	6.3	194
0.9 "	25	4.8	1.8	027	30	4.7	1.4	095	31	5.3	0.2	007	31	9.8	8.8	173	31	10.0	9.2	167	31	7.5	4.3	176
1.5 "	23	8.7	5.1	044	29	9.8	6.6	088	30	11.2	10.6	078	30	7.5	4.2	118	31	8.5	6.4	100	31	8.6	5.8	091
2.1 "	22	15.9	14.0	080	27	13.5	11.7	080	30	17.1	15.7	072	30	8.9	7.2	062	30	10.1	8.8	060	31	11.5	9.7	056
3.0 "	19	18.2	17.5	082	26	16.9	16.2	063	30	17.6	17.3	070	29	12.5	10.9	029	30	12.3	10.8	029	31	14.6	13.4	029
4.5 "	5	9.8	8.3	075	19	11.2	7.1	080	27	10.6	6.5	068	4	13.3	8.5	017	30	11.4	4.8	353	31	10.0	4.0	347
5.4 "	4	7.7	4.4	130	18	9.2	1.7	099	26	10.6	3.4	040					28	11.6	5.4	328	31	12.7	6.1	292
6.0 "	3	10.0	1.5	307	16	11.3	4.2	268	25	11.1	4.9	348					24	13.0	9.0	289	30	15.5	9.8	281
7.2 "	2	19.5	19.5	284	9	22.3	20.3	255	21	15.2	10.0	279					10	17.4	15.7	286	23	23.8	20.3	268
9.0 "					6	23.5	22.8	233	16	21.2	18.5	255					3	26.3	25.8	277	9	38.4	36.3	259

Station	MINICOY												MOHANBARI											
	0130				0730				1430				0130				0730				1430			
Time in L. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface.	31	1.7	1.1	337	31	2.6	2.4	353	31	4.6	3.0	356	31	2.3	1.8	051	31	3.3	2.6	051	31	3.3	2.7	048
0.15 a.g.	31	4.8	2.7	332	31	6.0	5.1	002	31	5.9	4.3	002	27	10.7	10.2	059	25	10.6	10.3	061	30	7.2	6.3	054
0.3 a.m.s.l.	31	4.7	2.5	332	31	6.3	5.0	009	31	6.4	4.6	009	27	10.6	10.2	059	25	11.1	10.8	055	30	7.5	6.5	058
0.6 "	31	4.5	1.5	002	31	5.4	3.9	020	31	6.5	4.4	022	27	9.3	8.1	062	24	10.2	9.0	054	29	7.7	6.4	065
0.9 "	29	5.5	2.5	088	30	6.7	5.3	070	27	7.5	5.3	058	26	7.1	3.4	069	23	9.6	6.1	072	28	5.8	3.3	080
1.5 "	29	13.9	12.2	093	29	14.6	14.4	087	25	12.7	12.2	079	26	7.7	4.5	218	22	7.6	2.7	213	24	7.7	6.3	217
2.1 "	23	23.5	21.7	081	26	20.8	20.4	083	21	19.5	19.0	074	23	11.8	9.6	233	19	19.8	8.0	222	21	14.0	13.1	220
3.0 "	23	23.3	21.6	080	26	19.9	19.2	078	17	20.6	20.1	073	18	16.5	14.5	251	15	11.6	9.4	229	19	17.0	15.6	231
4.5 "	11	11.6	8.7	076	18	11.4	9.1	073	12	13.2	12.3	073	1	17.0	17.0	190	8	13.4	11.3	253	13	14.8	17.9	233
5.4 "	8	13.0	8.1	053	16	10.1	7.5	062	11	13.3	9.4	083					6	21.3	20.4	259	10	19.5	14.7	238
6.0 "	4	15.0	10.9	065	14	10.6	4.9	046	10	10.5	7.1	083					5	18.0	15.8	280	10	23.7	16.5	255
7.2 "					9	11.8	4.0	143	6	6.3	1.9	162					1	46.0	46.0	270	3	42.7	41.7	248
9.0 "					6	19.5	11.7	191	5	6.6	4.1	205									1	54.0	54.0	250

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9·9 Km. above mean sea level

March 1936

Station	MUSSOORIE								NAGPUR															
	0730				1430				0130				0830*				1430				2030*			
in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
face	31	4·6	2·5	341	31	5·6	3·9	219	31	5·0	2·5	008	28	4·8	2·3	011	31	5·5	3·1	312	29	4·8	1·2	270
5 a. g.	26	16·2	12·4	352	22	6·8	4·1	236	31	11·6	5·0	026	28	5·8	2·2	014	31	7·6	5·3	284	27	6·0	2·5	279
a. m. s. l.									31	12·6	5·5	026	28	6·7	1·9	018	31	7·7	5·1	279	27	6·9	3·4	238
"									31	12·0	4·7	013	28	8·6	2·2	034	31	8·3	5·7	275	28	8·7	5·1	281
"									29	9·5	5·2	309	28	9·3	2·3	297	31	8·7	5·9	287	27	10·3	7·4	285
"	26	9·2	6·7	341	22	7·2	5·5	221	29	11·3	8·8	284	28	11·1	7·0	285	31	10·9	8·4	279	27	11·1	8·5	287
"	26	10·2	6·3	277	21	9·1	6·8	301	25	14·5	11·8	274	28	16·0	13·2	270	30	14·0	13·4	287	29	13·0	10·0	282
"	22	15·5	14·4	299	18	16·3	14·4	302					28	21·3	18·1	283	30	20·2	16·9	290	29	17·4	14·8	285
"	16	17·8	16·4	279	17	22·1	19·9	292					28	22·6	19·6	282	27	25·3	21·8	294	29	22·7	19·5	285
"	14	22·7	21·2	283	16	27·3	24·5	286					28	24·1	21·3	281	23	26·8	22·1	291	29	25·5	22·5	283
"	8	36·4	34·8	293	13	33·9	30·6	281					27	30·2	26·1	273	20	32·8	27·6	296	29	29·1	26·9	275
"	2	39·5	39·5	293	2	48·0	47·8	289					25	44·9	42·0	270	9	39·2	35·6	285	24	42·0	38·7	273
Station	NEW DELHI								POONA															
	0130				0830*				1430				2030*				0130				0730			
in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
face	31	5·6	3·6	337	31	5·6	3·0	315	31	9·0	5·7	319	30	5·9	1·8	550	31	2·2	2·0	232	31	0·9	0·6	225
5 a. g.	31	16·1	8·2	350	31	7·3	3·6	315	31	10·0	5·4	324	30	6·8	4·3	320	31	7·6	7·1	286	31	5·5	2·4	290
a. m. s. l.	31	12·2	6·3	349	31	6·6	3·3	315	31	11·2	6·3	327	30	6·4	3·9	320								
"	31	16·5	7·9	321	31	9·9	4·7	305	31	10·2	5·3	308	30	9·4	5·7	315	31	4·7	4·4	240	31	3·1	2·4	245
"	30	16·4	9·3	292	31	12·4	7·8	300	31	11·2	5·7	301	30	11·9	7·3	301	31	11·3	9·8	313	31	9·8	5·1	004
"	30	17·5	13·5	291	31	14·3	10·1	295	31	12·5	8·1	284	30	13·5	10·1	290	31	14·0	10·1	342	31	15·6	7·5	025
"	26	17·5	15·5	287	31	15·5	10·9	287	28	16·7	12·8	285	30	16·3	13·3	283	31	12·2	4·2	358	31	12·6	2·8	040
"	19	18·7	16·2	271	31	18·8	16·1	275	27	21·1	18·2	286	30	20·4	16·0	275	31	10·6	4·8	133	31	11·6	3·1	169
"					31	25·8	23·1	275	27	28·9	26·7	281	30	25·8	24·0	280	16	11·0	6·2	254	28	12·3	4·2	283
"					31	29·0	26·7	273	27	34·2	31·5	280	30	29·7	27·3	275	7	14·1	9·1	258	25	16·3	9·8	303
"					31	30·8	27·9	275	26	37·5	34·5	283	30	33·1	30·5	275	4	9·5	4·3	269	20	16·9	11·4	293
"					31	35·3	33·6	268	24	44·1	39·1	282	29	35·7	33·8	277	1	4·0	4·0	284	11	20·0	17·8	283
"					30	43·6	42·2	275	20	52·6	48·1	278	29	44·1	41·0	275	1	3·0	3·0	295	5	30·4	27·5	300

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

March 1956

Station	POONA								PORT BLAIR												RAIPUR			
	1430				2030*				0130				0730				1430				0130			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface.	31	2.9	1.5	309	22	5.5	5.2	285	31	2.4	1.1	038	31	2.5	1.8	041	31	4.3	3.8	077	31	2.8	0.8	266
0.15 a. g.	31	6.5	3.1	307	22	11.3	10.6	284	31	6.4	4.7	044	31	6.7	5.3	036	31	7.2	6.9	066	31	14.0	2.4	326
0.3 a. m. s. l.									31	6.4	4.9	050	31	7.1	5.8	043	31	7.5	7.0	066				
0.6 "	31	5.0	2.1	312	22	7.0	6.9	285	31	7.6	6.1	060	31	9.1	7.6	066	31	8.1	7.4	048	31	15.1	3.9	314
0.9 "	31	6.9	3.7	310	22	13.8	13.1	293	30	8.0	5.8	077	31	9.9	8.4	080	30	7.9	6.3	055	31	14.6	6.0	302
1.5 "	31	6.2	3.7	305	22	13.6	12.7	311	28	9.1	7.4	091	30	10.4	9.3	095	30	8.3	7.3	083	31	12.5	8.8	279
2.1 "	31	6.3	3.2	290	22	11.0	6.0	330	24	8.8	7.9	095	28	9.7	9.2	101	28	10.4	9.2	092	31	13.4	10.3	275
3.0 "	31	8.2	2.2	258	22	10.7	1.1	025	15	8.7	5.4	111	27	11.4	9.9	099	25	9.6	8.4	097	29	17.2	15.0	284
4.5 "	28	12.7	6.5	310	19	12.2	2.9	080	1	12.0	12.0	055	25	10.6	7.7	095	21	9.4	5.6	101				
5.4 "	28	16.7	10.0	304	13	11.6	1.2	389					18	7.9	4.0	094	19	8.4	4.8	097				
6.0 "	26	19.3	12.0	290	12	10.8	5.3	286					16	8.5	4.2	142	19	9.8	3.8	113				
7.2 "	20	26.2	23.4	287	3	8.0	6.6	287					8	8.5	5.7	244	13	8.9	4.7	209				
9.0 "	12	35.7	31.1	275									3	14.3	11.8	182	8	19.5	14.2	223				

Station	RAIPUR								SANTACRUZ															
	0730				1430				0130				0830*				1430				2030*			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface.	31	1.8	0.5	236	31	4.5	2.8	268	31	1.3	0.9	337	31	4.8	3.1	045	31	10.2	9.4	305	31	8.0	6.0	330
0.15 a. g.	31	10.9	1.2	317	31	9.7	7.4	274	31	8.7	6.0	330	28	10.3	6.6	035	31	11.5	10.2	310	27	15.3	12.5	330
0.3 a. m. s. l.									31	10.0	8.1	337	28	10.6	7.0	030	31	10.9	9.2	320	27	14.5	12.1	325
0.6 "	31	13.8	1.6	288	31	10.6	8.4	274	31	13.5	11.5	351	28	11.8	7.9	020	31	9.0	6.7	354	27	13.7	12.3	325
0.9 "	31	15.3	4.4	273	31	10.5	8.7	271	31	15.0	12.0	359	28	12.7	8.1	012	31	9.1	6.5	354	27	12.7	12.0	330
1.5 "	31	14.1	9.9	281	31	11.5	9.6	271	30	13.4	10.5	343	28	13.1	6.6	350	31	9.7	6.1	335	27	11.1	8.6	335
2.1 "	31	14.3	12.0	279	31	14.1	11.8	276	29	11.8	6.5	318	28	11.5	5.1	313	31	10.3	4.4	306	27	10.0	5.2	318
3.0 "	25	17.9	15.2	293	31	19.2	16.2	289	28	11.6	2.5	188	28	13.3	5.0	245	31	11.8	4.7	240	27	12.1	3.4	275
4.5 "	14	21.2	17.0	316	29	23.2	20.5	293	5	11.0	2.2	130	28	12.8	8.3	275	31	11.4	5.1	289	27	11.8	4.4	265
5.4 "	6	21.0	17.1	297	29	24.4	20.9	286					27	16.7	13.6	285	31	16.4	10.4	293	27	15.3	9.4	275
6.0 "	3	19.7	19.2	310	29	25.9	22.8	284					27	19.7	16.0	295	31	19.3	12.7	067	26	17.9	9.0	280
7.2 "					9	36.4	33.0	279					27	26.4	24.1	284	24	26.9	24.0	290	25	23.1	20.4	283
9.0 "					2	52.0	49.7	254					27	38.5	35.9	275	11	40.6	39.1	275	22	35.5	33.0	270

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

March 1956

Station	TEZPUR												TIRUCHIRAPALLI															
	0130				0730				1430				0130				0730				1430							
in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
ce.	31	3.3	2.8	063	31	3.8	3.1	072	31	5.9	1.1	099	31	3.2	2.5	055	31	2.1	1.8	008	31	4.2	3.4	086				
a. g.	27	12.4	11.8	076	28	10.5	8.5	077	29	10.2	3.7	081	31	8.0	7.1	105	31	4.5	2.5	057	31	6.3	5.5	080				
m. s. l.	27	13.0	12.1	080	28	12.6	10.3	085	29	10.5	3.7	092	31	9.2	8.5	105	31	5.0	3.0	085	31	6.2	5.6	077				
„	27	10.8	7.8	096	28	12.0	7.7	098	28	8.9	1.4	137	30	11.9	10.7	112	31	7.5	5.4	117	31	6.2	5.7	081				
„	25	8.7	2.9	185	27	10.6	2.8	120	28	10.3	5.3	244	27	11.6	9.9	104	31	8.3	6.2	109	31	6.8	6.4	084				
„	21	10.7	8.2	256	26	11.0	6.8	249	24	15.2	13.9	252	23	12.3	11.3	082	27	10.8	9.7	082	31	10.9	9.7	085				
„	13	12.0	10.9	259	22	13.0	10.9	247	24	19.0	18.8	249	21	16.3	15.8	073	25	16.2	15.3	067	29	17.1	16.2	064				
„	8	13.4	12.6	256	17	15.2	14.4	255	24	22.4	21.3	250	14	17.2	16.0	057	22	19.4	18.4	053	27	20.2	19.3	054				
„					10	20.5	18.7	271	16	27.6	26.8	269	1	6.0	6.0	030	14	12.8	10.2	086	23	12.3	8.8	064				
„					6	21.2	19.5	281	13	31.6	29.7	276	1	10.0	10.0	070	10	8.3	4.7	087	22	8.9	4.9	059				
„					2	19.5	18.7	268	12	30.6	29.9	272		8	7.3	4.2	197	18	7.4	1.7	355							
„					2	23.5	17.9	271	10	32.9	31.9	277		4	12.5	11.4	233	17	9.5	3.9	267							
„								6	49.2	48.0	274		1	24.0	24.0	180	14	19.6	15.2	254								

Station	TRIVANDRUM												UDAIPUR															
	0130				0730				1430				0130				0730				1430							
in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
ce.	31	1.5	0.9	357	31	1.8	1.6	039	31	6.2	5.3	239	31	0.9	0.6	263	31	0.4	0.2	270	31	4.7	3.3	240				
a. g.	31	5.2	3.9	327	31	5.3	4.2	010	31	10.5	8.9	228	31	6.5	3.6	310	31	4.9	2.2	312	31	9.1	5.0	254				
m. s. l.	31	5.2	4.4	318	31	5.6	4.0	348	31	10.4	9.3	225																
„	31	6.5	5.2	328	31	5.7	3.9	341	31	8.4	7.3	225																
„	31	7.0	4.9	003	31	6.3	3.7	005	30	6.8	1.9	244	31	8.9	4.9	301	31	7.1	2.4	302	31	9.1	5.7	255				
„	30	11.2	9.4	069	31	9.7	8.4	062	29	13.6	12.8	056	31	14.6	9.8	270	31	14.4	9.9	270	31	10.0	7.6	260				
„	30	17.4	16.3	063	31	16.6	16.0	070	26	20.2	20.0	055	31	17.5	14.0	263	31	17.3	13.9	272	31	13.0	11.1	267				
„	27	21.6	20.2	068	29	17.1	16.0	074	19	20.4	19.9	060	25	18.0	15.6	273	30	21.3	18.3	275	29	21.4	19.7	272				
„	10	11.7	8.1	078	22	12.5	11.0	083	14	12.2	10.8	085	4	20.7	20.2	288	18	23.1	20.4	277	27	28.6	27.0	276				
„	4	11.5	9.2	094	15	9.5	7.8	081	10	10.4	8.2	078					13	23.9	23.4	302	27	33.3	31.7	276				
„					12	8.3	6.9	069	9	11.2	7.8	070					8	22.6	19.3	288	23	33.4	31.5	278				
„					5	9.0	7.0	187	6	13.2	3.7	075					3	20.7	19.4	326	19	36.7	33.5	274				
„					1	26.0	26.0	255	3	16.0	8.2	189					1	25.0	25.0	280	12	41.7	39.6	280				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

March 1956

Station.	VENGURLA												VERAVAL											
	0130				0730				1430				0130				0730				1430			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	1.6	1.6	360	31	1.7	1.4	108	31	7.7	7.0	250	31	8.8	6.6	329	31	7.0	5.6	354	31	13.0	11.3	261
0.15 a. g.	31	8.5	7.5	355	31	6.9	4.5	099	31	8.7	8.0	252	31	16.9	13.6	330	29	14.8	11.4	355	31	12.5	10.6	272
0.3 a. m. s. l.	31	9.1	7.8	357	30	7.3	2.4	089	31	8.9	7.9	255	31	17.1	12.9	333	29	15.3	11.7	347	31	11.2	8.8	289
0.6 "	31	10.8	9.3	350	30	8.7	2.0	040	30	7.5	3.0	259	31	15.3	10.8	326	29	13.8	10.6	339	31	10.1	8.1	219
0.9 "	31	13.8	12.9	340	29	11.5	8.1	011	28	8.1	0.5	061	28	13.0	9.0	331	29	11.4	8.1	033	31	11.2	8.5	332
1.5 "	30	12.6	10.5	347	29	14.7	9.4	022	27	8.7	4.1	052	27	12.2	7.6	316	29	11.9	9.0	308	31	13.0	8.9	314
2.1 "	29	8.7	4.8	078	27	9.0	3.9	040	26	9.6	5.6	061	25	11.6	6.0	316	28	12.9	9.2	297	31	14.8	11.1	304
3.0 "	29	13.1	11.4	101	27	9.1	6.3	105	26	10.3	8.1	078	18	8.4	3.3	303	22	10.7	5.9	275	30	14.5	11.5	301
4.5 "	10	11.1	3.0	094	24	11.0	3.4	027	25	11.2	7.0	015					19	10.7	7.2	268	28	17.0	15.0	279
5.4 "					21	10.6	4.5	297	25	11.6	5.6	350					19	16.6	13.9	278	26	21.1	17.3	285
6.0 "					21	12.7	8.0	302	24	12.6	7.7	326					16	19.8	18.1	278	25	23.6	19.7	285
7.2 "					12	17.9	13.6	270	22	18.6	15.7	276					6	28.3	24.0	278	23	31.9	29.7	284
9.0 "					5	40.2	33.4	277	17	35.6	33.0	257									9	32.3	30.3	277

Station.	VISAKHAPATNAM											
	0130				0730				1430			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D
Surface.	31	1.2	1.1	226	31	1.2	1.1	227	31	12.5	11.2	203
0.15 a. g.	31	8.4	8.2	231	31	6.6	5.9	242	31	11.5	11.1	208
0.3 a. m. s. l.	31	10.3	10.2	233	31	9.6	9.3	235	31	10.7	10.1	208
0.6 "	30	11.2	11.0	234	31	10.0	9.6	234	31	8.7	6.7	214
0.9 "	29	9.0	7.9	235	31	8.7	7.2	233	31	8.5	5.4	219
1.5 "	27	5.6	1.3	260	31	5.9	1.0	327	31	7.7	1.3	331
2.1 "	27	6.8	4.6	357	30	7.3	5.7	012	31	8.6	5.5	349
3.0 "	23	9.9	8.0	350	29	10.8	9.3	359	31	12.5	10.2	189
4.5 "	9	9.1	6.5	273	24	10.8	5.9	322	31	12.5	8.5	327
5.4 "					20	14.3	9.3	290	31	13.9	8.6	303
6.0 "					14	18.1	17.0	260	31	16.4	11.1	291
7.2 "					4	24.7	22.9	280	28	25.0	19.4	273
9.0 "									24	37.1	32.8	269

TABLE V—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds above 9.0 Km. above mean sea level

March 1956

n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	
AHMEDABAD					BAMRAULI					CHIKALTHANA					GAUHATI					JABALPUR					
0730 hrs.					2630 hrs.*					1430 hrs.					0830 hrs.*					1430 hrs.					
1	18.0	18.0	265	10.5	13	60.8	54.2	245	10.5	1	42.0	42.0	290	14.1	5	72.4	70.5	278	10.5	2	37.0	36.9	286		
1	31.0	31.0	270	12.0	7	60.9	52.9	240						16.2	3	52.0	52.0	272	12.0	1	58.0	58.0	310		
				14.1	2	87.5	82.3	240						18.0	1	25.0	25.0	250							
1430 hrs.				16.2	1	102.0	102.0	220		COCHIN					JAGDALPUR										
5	39.0	37.5	275							0730 hrs.					0730 hrs.										
1	47.0	47.0	230		BANGALORE					0730 hrs.				10.5	1	41.0	41.0	280							
1	63.0	63.0	185						10.5	1	2.0	2.0	305	10.5	15	82.5	81.0	275	12.0	1	50.0	50.0	275		
1	33.0	33.0	200	10.5	11	27.2	25.6	248						12.0	11	96.8	92.4	269		1430 hrs.					
AMBALA				12.0	3	25.7	25.3	255						14.1	6	94.8	90.1	269	10.5	2	25.0	22.9	324		
1430 hrs.										1430 hrs.					GAYA					JODHPUR					
5	64.0	60.7	283	10.5	14	23.8	19.9	255	10.5	6	9.7	5.2	234		0730 hrs.					0730 hrs.					
2	52.5	52.5	280	12.0	11	22.3	17.7	264	12.0	3	9.6	7.0	248		1	26.0	26.0	290	10.5	1	25.0	25.0	270		
1	58.0	58.0	290	14.1	10	16.8	9.5	282						10.5	1430 hrs.					1430 hrs.					
1	61.0	61.0	300	16.2	5	13.4	4.0	194		DUM DUM					0730 hrs.					0730 hrs.					
ANANTAPUR				18.0	3	11.3	10.2	233							12.0	1	31.0	31.0	270	10.5	3	35.0	34.5	300	
0730 hrs.				20.0	1	9.0	9.0	315							12.0	1	40.0	40.0	200	12.0	2	44.5	44.5	280	
14	25.3	23.4	257						10.5	29	62.4	59.0	261	14.1	1	70.0	70.0	270		2030 hrs.*					
9	29.2	25.5	265		BEGUMPET				12.0	24	62.2	60.0	253		0730 hrs.					0730 hrs.					
4	17.7	16.1	268						14.1	8	56.1	54.7	267		0730 hrs.					0730 hrs.					
1	10.0	10.0	260	10.5	6	53.5	50.5	262	16.2	4	43.5	42.1	274		GOPALPUR					0730 hrs.					
1	11.0	11.0	285	12.0	2	47.0	45.3	253		2030 hrs.*					0730 hrs.					0730 hrs.					
1	9.0	9.0	325	14.1	1	38.0	38.0	275		10.5	28	65.7	62.7	267	10.5	1	29.0	29.0	275		0730 hrs.				
1	22.0	22.0	305						12.0	25	68.5	66.4	267	12.0	1	39.0	39.0	266		MADRAS					
1430 hrs.					BHUBANESHWAR											0730 hrs.					0830 hrs.*				
11	21.4	17.4	272						14.1	8	61.6	57.5	261		1430 hrs.				10.5	21	29.5	26.0	250		
6	18.3	13.1	262						16.2	3	53.3	52.9	284		0730 hrs.				12.0	19	33.1	30.8	258		
3	23.0	17.4	254	10.5	1	43.0	43.0	270		GADAG				10.5	4	53.3	52.1	252	14.1	17	24.8	19.1	259		
BAIRAGARH															12.0	3	56.3	54.8	248	16.2	5	19.0	13.8	267	
1430 hrs.					BHUJ										14.1	1	71.0	71.0	233	18.0	3	18.3	0.6	254	
5	68.2	64.2	289						10.5	2	30.0	15.9	349		0730 hrs.					1430 hrs.					
BAMRAULI				10.5	1	25.0	25.0	310		GAUHATI					GWALIOR					1430 hrs.					
0830 hrs.*																0730 hrs.				10.5	18	26.9	24.4	250	
4	59.0	56.1	255	10.5	4	37.5	35.5	276	10.5	17	75.1	71.9	266	10.5	5	40.8	83.2	279	16.2	1	6.0	6.0	215		
3	66.6	65.2	240	12.0	2	45.0	44.5	285	12.0	11	90.1	87.8	260	12.0	2	45.0	45.0	262	18.0	1	14.0	14.0	190		

RADIOSONDE DATA

March 1956

During the month, observations of upper air temperature, pressure and humidity were made at 13 stations in India as given in the list *v.* For a detailed description of the instruments used a reference may be made to the I. M. D. Scientific Notes Nos. 112 and 113 (Volume IX).

LIST OF RADIOSONDE STATIONS IN INDIA

Name of station	Type of instrument used	Date of starting	Hours of routine observations in GMT during the month	Remarks
Allahabad	Clock type	1st October 1954	03 and 15	
Bombay	Clock type	7th September 1954	03 and 15	
Calcutta	Clock type	13th December 1946	03 and 15	Fan type used from 13th December 1946 to 30th November 1947.
Gauhati	Clock type	22nd July 1955	03 and 15	Shifted from Shillong.
Jodhpur	Clock type	17th April 1946	15	
Madras	Fan type	29th June 1946	03 and 15	
Nagpur	Fan type	1st October 1946	03 and 15	
New Delhi	Clock type	3rd December 1943	03 and 15	
Poona	Fan type	24th April 1944	15	
Port Blair	Fan type	4th December 1949	15	
Trivandrum	Fan type	1st July 1947	15	
Peraval	Fan type	3rd October 1944	15	
Visakhapatnam	Fan type	8th December 1946	15	

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(a) From ascents at 03 hrs. G. M. T.

March 1956

Standard pressure surface mbs.	ALLAHABAD Surf. Pr. (1000 mb.)						BOMBAY (1010 mb.)						CALCUTTA (1010 mb.)					
	No. of obs.	Ht. gpm.	Temperature °A				No. of obs.	Ht. gpm.	Temperature °A				No. of obs.	Ht. gpm.	Temperature °A			
			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point
Surface	29	98	296.8	303	291	285.8	31	9	298.1	307	293	294.2	31	6	299.1	303	295	294.2
1000	27	93	...	...	...	...	31	97	...	...	...	...	31	93	...	...	...	...
900	27	1011	294.9	301	289	277.8	31	1024	298.0	302	291	280.7	31	1019	295.3	300	291	283.4
850	27	1504	291.8	297	287	275.1	31	1522	295.4	298	287	278.2	31	1512	292.7	297	288	281.0
800	27	2023	288.7	292	284	272.0	31	2045	291.2	296	284	276.6	31	2029	288.2	292	283	277.8
700	27	3142	280.4	285	273	268.8	31	3170	282.2	287	275	272.4	31	3145	280.5	284	276	271.2
600	27	4395	272.5	278	269	263.8	31	4426	273.2	279	269	262.1	30	4397	272.5	278	267	261.6
500	26	5828	263.5	270	259	...	31	5864	264.1	272	259	...	30	5833	264.2	273	255	...
400	23	7515	251.8	260	247	...	31	7558	254.3	264	247	...	30	7527	253.0	260	242	...
300	20	9579	239.3	248	229	...	29	9645	241.0	253	233	...	29	9622	241.9	252	230	...
250	17	10830	233.3	241	220	...	28	10916	233.9	247	226	...	24	10898	234.8	244	219	...
200	14	12345	225.4	234	211	...	27	12404	225.0	235	216	...	20	12419	227.0	240	205	...
175	8	13243	222.7	231	218	...	25	13265	218.8	226	209	...	13	13387	223.1	238	199	...
150	6	14225	215.7	227	209	...	24	14247	213.3	222	205	...	9	14301	217.8	229	197	...
125							19	15391	206.2	217	195	...						
100							13	16675	201.1	208	192	...						
80							6	17952	199.7	209	190	...						
	GAUHATI (1006 mb.)						MADRAS (1011 mb.)						NAGPUR (976 mb.)					
Surface	31	49	295.7	300	293	293.6	31	15	300.3	302	297	296.6	29	311	300.6	305	297	280.9
1000	31	103	...	...	...	...	31	109	...	...	...	...	29	100	...	...	...	...
900	31	1013	291.4	295	287	287.2	31	1032	295.6	299	290	281.9	29	1028	297.9	301	294	278.4
850	31	1501	288.0	292	282	283.9	31	1527	294.0	298	291	275.5	29	1525	294.8	298	289	276.1
800	31	2014	284.3	288	277	281.3	31	2048	291.1	297	285	273.0	29	2048	290.9	295	286	274.4
700	31	3113	277.0	282	272	273.6	31	3176	284.1	289	280	265.8	29	3173	282.0	285	278	269.5
600	31	4351	270.7	276	266	269.7	31	4444	276.1	281	272	259.6	29	4427	272.8	279	267	256.6
500	30	5782	263.3	267	252	...	30	5903	268.4	274	263	...	29	5861	263.5	269	259	...
400	29	7466	251.8	259	246	...	29	7628	257.7	266	251	...	28	7545	252.2	258	249	...
300	27	9534	238.9	247	228	...	22	9752	244.4	251	239	...	26	9631	240.2	247	233	...
250	25	10789	232.1	243	218	...	20	11031	234.9	241	230	...	23	10898	232.3	240	227	...
200	24	12274	226.1	235	213	...	18	12538	225.3	231	216	...	19	12387	223.5	233	217	...
175	18	13119	222.1	230	209	...	17	13390	219.7	225	211	...	17	13256	218.0	231	211	...
150	16	14095	217.4	227	203	...	16	14399	214.0	221	206	...	15	14233	213.2	227	202	...
125	11	15270	215.2	222	207	...	10	15505	207.9	212	202	...	10	15332	208.1	210	204	...
100	10	16649	209.7	225	201	...	6	16883	200.8	207	195	...	8	16739	204.3	220	195	...
80							6	18167	202.3	215	195	...	6	18167	202.3	215	195	...

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(b) From ascents at 15 hrs. G. M. T.

March 1956

Standard pressure surface mbs.	ALLAHABAD Surf. Pr. (997 mb.)						BOMBAY (1008 mb.)						CALCUTTA (1008 mb.)					
	No. of obs.	Ht. gpm.	Temperature °A				No. of obs.	Ht. gpm.	Temperature °A				No. of obs.	Ht. gpm.	Temperature °A			
			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point
Surface	31	98	298.8	304	291	285.7	31	9	300.0	304	298	295.1	31	6	299.2	302	294	294.7
1000	31	74	...	...	...	...	31	81	...	...	...	...	31	80	...	...	...	...
900	31	1001	297.0	302	291	278.5	31	1015	300.5	305	296	280.0	31	1004	296.7	303	291	285.1
850	31	1497	293.4	299	289	275.3	31	1518	296.6	300	291	277.5	31	1500	292.6	297	288	281.8
800	31	2019	289.3	293	283	273.0	31	2043	292.5	296	287	276.3	31	2018	288.7	294	283	278.2
700	31	3135	281.4	285	275	265.9	31	3173	283.5	287	280	271.7	31	3135	280.9	287	275	269.8
600	31	4390	272.9	277	265	260.0	31	4436	274.4	280	270	267.5	30	4388	272.7	277	267	261.0
500	31	5827	264.1	271	258	...	30	5878	265.9	271	259	...	30	5822	263.2	271	254	...
400	31	7517	252.4	261	245	...	29	7586	256.1	261	249	...	30	7510	252.4	261	243	...
300	23	9611	239.7	246	232	...	26	9694	243.5	252	231	...	26	9576	239.4	249	227	...
250	19	10873	233.1	243	225	...	24	10977	235.9	248	222	...	21	10844	231.3	241	220	...
200	14	12332	225.7	235	216	...	23	12489	224.8	239	215	...	17	12311	222.4	230	209	...
175	13	13244	220.8	233	212	...	20	13358	221.7	235	212	...	12	13184	216.9	229	204	...
150	9	14220	219.5	231	210	...	20	14350	216.1	230	204	...	7	14122	212.3	224	202	...
125	5	15392	215.2	220	210	...	12	15481	209.8	225	199	...						
100							6	16898	207.3	223	196	...						
80																		
	GAUHATI (1004 mb.)						JODHPUR (984 mb.)						MADRAS (1008 mb.)					
Surface	30	49	295.3	299	291	293.3	29	218	300.6	307	293	281.4	30	15	300.0	302	299	296.0
1000	30	81	...	...	...	...	29	78	...	...	...	...	30	91	...	...	...	...
900	30	998	293.1	297	288	286.9	29	1005	296.8	304	289	277.0	30	1016	297.1	301	294	278.9
850	30	1490	289.4	295	283	285.0	29	1499	292.1	299	285	272.8	30	1513	295.0	300	292	272.7
800	30	2001	285.4	291	279	281.9	29	2016	287.6	291	281	271.7	30	2036	291.8	296	289	272.1
700	30	3105	277.5	283	273	274.6	29	3128	279.2	284	272	266.7	30	3163	284.4	293	281	265.4
600	30	4346	271.2	275	265	271.0	29	4372	270.2	275	254	256.1	30	4433	275.6	279	268	259.8
500	30	5774	262.5	270	251	...	28	5792	260.6	268	240	...	30	5885	267.4	272	263	...
400	29	7457	251.7	261	244	...	27	7466	250.2	258	236	...	30	7603	257.5	265	253	...
300	27	9538	239.3	254	229	...	22	9531	237.9	249	231	...	23	9719	243.6	252	240	...
250	24	10798	232.3	249	222	...	22	10784	230.9	246	216	...	20	10993	234.7	241	232	...
200	20	12289	225.7	240	213	...	19	12264	225.4	242	211	...	19	12486	223.7	231	217	...
175	17	13184	222.6	235	209	...	14	13201	222.1	226	217	...	15	13330	217.5	225	209	...
150	14	14127	216.6	227	203	...	9	14108	215.8	219	213	...	13	14335	211.5	221	205	...
125	6	15205	208.8	219	199	...							7	15427	206.4	215	200	...
100													7	16796	200.4	209	195	...
80													7	18081	198.7	205	193	...

RADIOSONDE DATA

TABLE VI.—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(b) From ascents at 15 hrs. G. M. T.

March 1956

NAGPUR Surf. Pr. (973 mb.)						NEW DELHI (985 mb.)						POONA (948 mb.)					
No. of obs.	Ht. gpm.	Temperature °A				No. of obs.	Ht. gpm.	Temperature °A				No. of obs.	Ht. gpm.	Temperature °A			
		Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point
29	811	305.1	308	303	280.4	30	210	295.8	302	292	285.2	31	557	302.1	305	300	284.1
29	61	...	...	...	...	30	81	...	...	...	...	31	81	...	...	...	...
29	1001	301.2	306	299	277.0	30	1000	294.4	299	289	280.1	31	1016	300.5	305	298	279.3
29	1504	296.8	302	293	275.1	30	1492	291.0	296	286	277.2	31	1518	296.9	301	294	275.4
29	2028	291.9	297	287	274.7	30	2006	287.6	292	283	274.6	31	2044	293.3	300	290	272.9
29	3154	282.1	289	277	270.7	30	3119	280.0	286	276	269.0	31	3175	283.7	290	280	268.9
29	4407	271.3	277	267	261.1	30	4366	271.8	276	267	263.0	31	4436	274.2	289	271	255.5
29	5832	262.3	270	253	...	30	5794	263.0	269	256	...	31	5876	264.3	270	261	...
29	7511	250.9	260	243	...	30	7476	251.4	257	244	...	31	7570	253.5	259	244	...
26	9576	238.1	253	232	...	29	9537	237.7	245	229	...	27	9647	239.8	245	235	...
21	10813	229.8	248	222	...	28	10790	231.0	236	223	...	25	10889	231.1	237	224	...
15	12283	220.4	226	216	...	25	12272	223.7	233	215	...	24	12389	221.7	227	210	...
12	13125	215.8	223	210	...	23	13141	221.9	232	212	...	22	13227	215.0	220	206	...
10	14232	211.4	221	204	...	23	14129	218.9	230	207	...	19	14205	209.2	219	201	...
6	15190	204.7	209	199	...	19	15277	214.0	225	201	...	13	15314	205.0	218	199	...
						10	16662	211.3	222	198	...	8	16653	201.1	217	196	...
PORT BLAIR (1002 mb.)						TRIVANDRUM (1002 mb.)						VERAVAL (1010 mb.)					
30	81	300.1	301	297	296.2	30	64	301.0	303	299	295.7	30	8	298.2	301	296	294.4
30	98	...	...	...	...	30	85	...	...	...	...	30	93	...	...	...	...
30	1022	295.0	297	291	288.2	30	1010	293.7	298	291	289.9	30	1024	297.7	303	292	279.6
30	1517	292.7	295	289	284.4	30	1503	291.2	295	287	286.6	30	1522	294.3	299	287	276.0
30	2036	289.8	293	287	281.4	30	2020	287.2	292	284	281.3	30	2044	290.6	295	283	274.2
30	3163	284.4	291	280	273.8	30	3141	283.1	286	279	267.2	30	3167	282.5	287	274	269.1
29	4333	277.4	286	273	262.6	30	4407	276.1	281	273	260.6	28	4423	273.2	279	267	262.5
28	5890	268.6	274	264	...	30	5859	267.0	271	263	...	27	5856	263.4	269	255	...
23	7616	258.6	268	255	...	28	7576	256.8	262	251	...	27	7543	251.8	258	243	...
16	9740	244.8	258	239	...	26	9675	241.3	247	234	...	24	9615	239.0	246	225	...
11	11020	235.3	240	231	...	24	10945	232.3	239	222	...	22	10870	231.7	242	221	...
10	12534	225.1	229	219	...	24	12427	221.6	233	214	...	22	12359	223.0	232	216	...
5	13458	221.2	226	218	...	20	13255	214.5	228	208	...	15	13196	217.3	225	211	...
5	14446	215.0	223	213	...	18	14292	208.7	223	199	...	14	14201	212.0	221	205	...
						10	15342	203.3	208	199	...	7	15280	204.6	208	198	...
						8	16659	198.6	203	193	...	6	16600	196.8	203	191	...
						6	17983	194.6	199	190	...						

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(b) From ascents at 15 hrs. G. M. T.

March 1956

Standard pressure surface mbs.	VISAKHAPATNAM Surf. Pr. (1004 mb.)													
	No. of obs.	Ht. gpm.	Temperature °A											
			Mean	Max.	Min.	Dew point								
Surface	30	48	299.9	301	299	294.8								
1000	30	82	...	...	...	...				
900	30	1010	298.6	303	293	282.4								
850	30	1510	295.8	299	289	279.4								
800	30	2035	292.1	298	285	276.3								
700	30	3165	282.8	291	279	273.7								
600	30	4425	274.3	278	269	256.6								
500	29	5873	266.2	274	262	...								
400	28	7580	255.6	268	248	...								
300	26	9675	242.5	249	235	...								
250	23	10947	233.5	238	229	...								
200	20	12448	224.1	229	218	...								
175	18	13314	218.6	223	214	...								
150	17	14315	212.9	219	208	...								
125	11	15426	207.6	210	201	...								
100	9	16784	201.6	205	198	...								
80	5	18052	200.6	208	195	...								

NOTE.—Number of observations refer to those of dynamic height.

Means are not worked out for temperature and dew point for the 1000 mb. surface and for dew point for standard pressure surfaces with temperature less than 273°A.

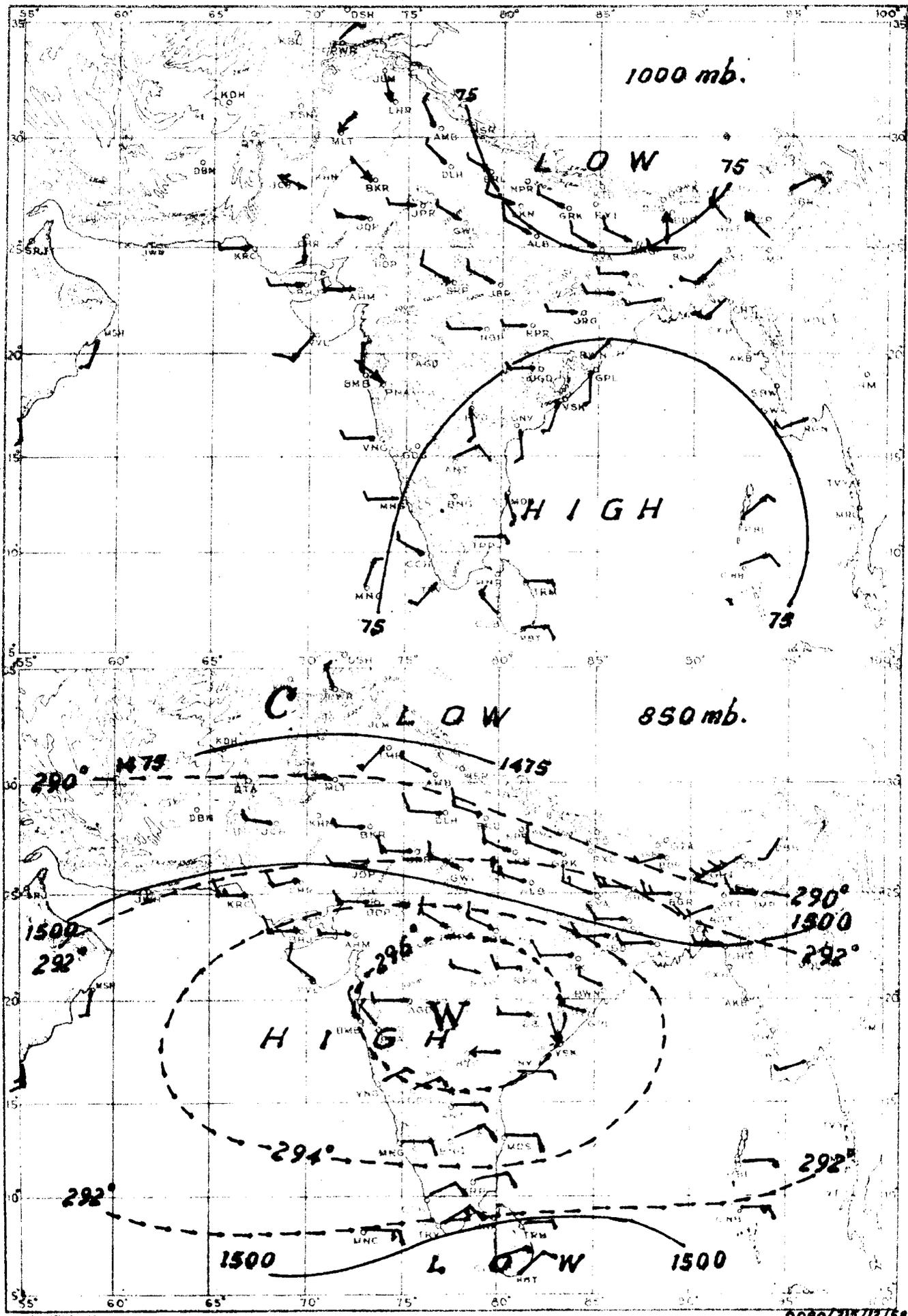
Means are not worked out for less than five observations at standard pressure surfaces.

MONTHLY MEAN CONSTANT PRESSURE CHARTS

MARCH 1956

I. Mei D.

Plate I



RESULTANT WIND — 5 Knots, — 10 Knots, — 50 Knots

----- Isotherms in degrees absolute. ———— Contours in geopotential metres.

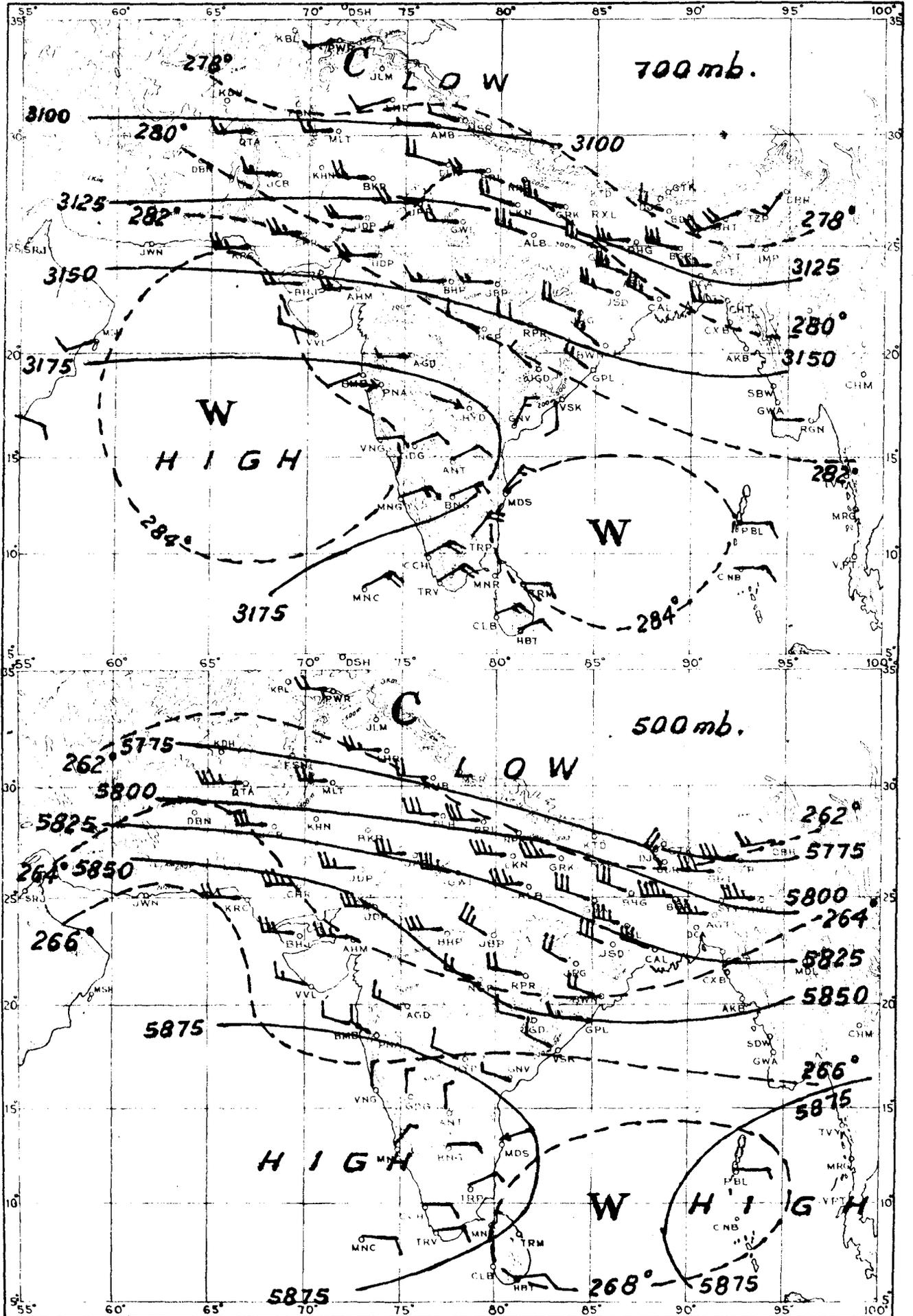
6086/318712/68

MONTHLY MEAN CONSTANT PRESSURE CHARTS

MARCH 1956

I. Mel. D.

Plate II



RESULTANT WIND — 5 Knots, — 10 Knots, — 50 Knots.

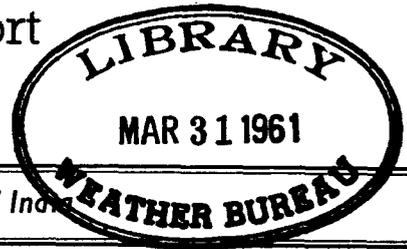
----- Isotherms in degrees absolute.

————— Contours in geopotential metres.

INDIA WEATHER REVIEW, 1956

Monthly Weather Report

April



Published by authority of the Government of India

Chief features—

(1) Deficient or scanty rainfall over most parts of the country outside the south Peninsula, due to comparative inactivity of the western disturbances, four of which moved across the northern parts of the country causing precipitation mainly in Jammu-Kashmir and the Punjab-Kumaon hills.

(2) Widespread and locally heavy rain in south Peninsula in association with a cyclonic storm from the Bay of Bengal which struck coastal Andhra Pradesh near Ongole towards the end of the month.

The first western disturbance of the month moved across the extreme north of the country between 1st and 2nd April and induced a 'low' over north Rajasthan and neighbourhood on the 2nd morning. The low moved slowly northeast and broke up over the Punjab-Kumaon hills on the 4th. Thundershowers were fairly widespread in the Punjab-Kumaon hills and local in the plains of the Punjab (I) on the 4th. Jammu-Kashmir experienced scattered showers between the 2nd and 4th. The second western disturbance moved across the extreme north of the country between the 6th and 10th and induced a low over southeast Rajasthan on the 8th. In association with these, fairly widespread or local thundershowers occurred in the Punjab-Kumaon hills from the 9th to 11th and local or scattered thundershowers in Jammu-Kashmir on the 9th and 10th. An upper air trough at 7,000 ft. a. s. l. and aloft appeared over the Punjab (I) on the 12th and moved away eastwards in the course of the next three days. In association with this, fairly widespread thundershowers occurred in the Punjab hills on the 13th and local thundershowers in the Punjab-Kumaon hills on the 14th. A few hailstorms were also reported from the Punjab hills on the 14th. The third western disturbance appeared over Jammu-Kashmir on the 18th, with an induced 'low' over the Punjab (P). This system, moved away eastwards without causing any precipitation. The last western disturbance in the month moved across the extreme north of the country between the 21st and 23rd, causing a few thundershowers in Jammu-Kashmir and along and near the Punjab-Kumaon hills.

Under the influence of an upper air trough over upper Assam and Sub-Himalayan West Bengal, there was an incursion of relatively moist air over Assam and West Bengal. As a result, fairly widespread or local thundershowers occurred in Sub-Himalayan West Bengal on the first three days of the month and scattered showers in Assam during the first four days. Assam continued to experience local thundershowers for a further period of about a week, some of the thunderstorms being accompanied by hail. By the 20th April, there was again an incursion of relatively moist air over northeast India; under the influence of a westerly wave moving across Tibet, resulting in a spell of thunderstorm activity over Assam, West Bengal and adjoining areas between the 20th and 25th; the spell in Assam continued till the end of the month, although on a small scale. Cherrapunji recorded 4" of rain on 21st and Gangtok (Sikkim) 7" on the 20th.

Conditions became markedly unsettled in the southwest and adjoining southeast Bay of Bengal on the 27th. On the next day, a depression formed with its centre at 0830 hrs. IST near Lat. $10^{\circ}0'N$, Long. $89^{\circ}0'E$. Moving northwest, it intensified into a cyclonic storm by the same evening. It was centred at 0830 hrs. IST of 29th near Lat. $14^{\circ}0'N$ Long. $83^{\circ}0'E$. Thereafter, it moved westnorthwest and was centred at 1730 hrs. IST about 80 miles to the southeast of Ongole. The storm hit the east coast during the night just to the south of Ongole and weakened. It lay as a depression centred about 50 miles south of Gadag at 0830 hrs. IST of the 30th.

Under the influence of the storm, Travancore-Cochin had widespread heavy rain with locally very heavy falls on 29th, Cochin recording 6", Trivandrum 4" and Punalur 3". Widespread and locally heavy rain also occurred over the south Peninsula and coastal Andhradesa on the last day of the month, when Shimoga recorded 5", Chitaldrug and Cuddapah 4" each and Kozhikode, Cochin and Hassan 3" each. The heavy rains and strong winds associated with the storm were reported to have dislocated rail traffic between Cuddapah and Renigunta. Newspapers also reported capsizing of some small coastal vessels off the coast, uprooting of trees and damage to property.

During the month, there was very little precipitation in the plains of northwest India and in Uttar Pradesh and the central parts of the country. In the Peninsula also, there was scanty rainfall until the cyclonic storm brought in a spell of good rains towards the end of the month. As a consequence of prolonged clear sky conditions, day temperatures steadily rose over the interior parts of the Peninsula from about the middle of the month and a moderate heat wave prevailed in southeast Hyderabad, south coastal Andhradesa, Rayalaseema and adjoining Tamilnad between 24th and 27th. Several stations recorded temperatures exceeding 110°F (6 to 10°F above normal). The heat wave abated quickly with the arrival of cooler maritime air in association with the cyclonic storm.

The total rainfall during the month was in large excess in the Bay Islands, the Konkan, coastal Andhra Pradesh, Rayalaseema, Malabar and south Kanara, Mysore and Travancore-cochin, normal in West Bengal, Jammu-Kashmir and Deccan (Desh), in slight defect in Assam, in moderate defect in Gujarat and Tamilnad and in large defect elsewhere in the country.

The mean maximum temperature was above normal in Assam, Bihar, Uttar Pradesh, the Punjab (I), Vindhya Pradesh and east Madhya Pradesh and normal elsewhere.

The mean minimum temperature was above normal in Assam, West Bengal, Chota Nagpur, Uttar Pradesh, west Rajasthan and Madhya Pradesh and normal over the rest of the country.

The mean relative humidity in the morning was above normal in Mysore, below normal in Madhya Bharat, Gujarat, south Hyderabad and Rayalaseema and normal over the remaining parts of the country.

The mean cloud amount in the morning was in excess in the Bay Islands, west Madhya Pradesh, Deccan (Desh), Hyderabad, coastal Andhradesa, Mysore and Travancore-Cochin, in defect in West Bengal, Bihar, Uttar Pradesh, the Punjab (I), west Rajasthan and Vindhya Pradesh and normal elsewhere over the country.

Table I contains the divisional and sub-divisional means of rainfall, temperature, humidity and cloud amount for the 13 chief political divisions and 28 sub-divisions. The stations whose observations are used for preparing these means are given in the subsequent tables.

The highest maximum temperature given for any station in the accompanying table is that recorded within the 24 hours ending at 0830 hrs. IST of the date noted in the succeeding column. Similarly the heaviest fall in 24 hours for any station denotes the amount recorded during the 24 hours ending at 0830 hrs. IST of the date given in the succeeding column.

POONA 5;

Dated the 3rd August, 1957.

K. DAS,

for Director General of Observatories.

Errata to Monthly Weather Report for April 1956

Table	Page No.	Station	Hour	Column	For	Read
I	153	14. Vindhya Pradesh	-	7	Not clear.	18
II	154	Chaparmukh	-	11	5.97	5.93
		Tangla	-	11	3.92	7.92
		Gauhati	-	4	Not clear.	98
		Titilagarh	-	3	Blank	"
		Footnote	-	at the end	(c) Mean of 23 day	(c) Mean of 28 days.
	158	Mysore	-	18	+6.2	6.2
	159	Fort Cochin	-	2	Not clear	88.8
	159	Alleppey	-	5	days	4 days.
		Mawsynram	-	17	Blank	"
		Darjiling (Raj Bhavan)	-	9	16	1, 6
Ootacamund		-	9	Not clear	3, 17	
III	161	Kondul	1730	11	78	88
		Sibsagar	0830	6	-0.	-0.5
		Jorhat	0830	4	Not clear	1009.3
	162	Haflong	1730	13	Blank	3.2
		Barrackpore	0830	21	Blank	0
		Suri	1730	5	Not clear.	993.8
	163	Koraput	0830	2	830	0830
	167	Phalodi	0830	9	Not clear	46.6
		Phalodi	1730	9	42.1	42.1(b)
	167	Jaipur	1130	4	Not clear	1006.7
		Jaipur (Sangnare Aerodrome)	2330	4	Not clear	1005.9
	168	Guna	1130	5	953.1	955.1
		Umaria	1730	11	Not clear	16
		Pendra	0530	15	Not clear	3.0
		Pendra	1730	15	"	5.1
	169	Ahmedabad	0830	14	Not clear	+0.2
	170	Bhuj (P.B.O.)	2330	22	Blank	0
	171	Ratnagiri	-	1	Ra nagiri	Ratnagiri
	172	Nizamabad	1730	24	Not clear	1
	175	Darjiling (Raj Bhavan)	1730	11	Not clear	80
176	Hazaribagh	1730	8	Not clear	63.1	
	Panchat Hills	1730	9	Not clear.	43.2	
	Bagra Tawa	0830	13	1.	1.8	
178	Jodhpur	-	-	0830	0830*	

Table	Page No.	Station	Ht.in km.	Hour	Column	For	Read
IV	181	Bareilly	0.9	0730	n	33	30
		Bangalore	4.5	0130	V	12.7	12.6
	182	Bhuj	0.9	1430	V	10.9	10.3
		Chikalhana	4.5	0130	v	4.6	4.3
	183	Cochin	0.9	0730	n	Not clear.	30
		Cochin	2.1	0730	n	Not clear.	24
		Dum Dum	0.6	0130	n	Not clear.	30
	191	Veraval	0.9	1430	v	Not clear.	8.0
Vishakhapatnam		0.9	0130	D	288	228	
V	192	Anantapur	10.5	0730	V	21.1	21.0
	193	Minicoy	-	0730	Heading	0730 hrs.*	0730 hrs.
		Tiruchirapalli	16.2	1430	Ht.in Km.	16.6	16.2

1	Rainfall (inches)	Percentage of normal	Mean maximum temperature °F	Mean minimum temperature °F	Relative humidity %		Cloud		1	Rainfall (inches)	Percentage of normal	Mean maximum temperature °F	Mean minimum temperature °F	Relative humidity %		Cloud	
					0830 hrs. I.S.T.	1730 hrs. I.S.T.	0830 hrs. I.S.T.	1730 hrs. I.S.T.						0830 hrs. I.S.T.	1730 hrs. I.S.T.	0830 hrs. I.S.T.	1730 hrs. I.S.T.
Division									Division—Contd.								
am (including anipur & Tri-ra).	6.04 -1.89	76	88.7 +3.1	69.9 +2.3	76 +1	66	4.2 -0.3	3.5	8. Madhya Bharat & Vindhya Pradesh	0 -0.23	0	101.9 +1.6	70.9 +0.8	25 -5	13	1.2 -0.2	1.9
st Bengal	1.62 -0.11	94	98.2 +1.1	76.2 +2.0	62 -2	46	2.2 -0.6	2.0	9. Madhya Pradesh.	0.04 -0.57	7	103.8 +2.1	75.9 +2.5	28 -5	16	2.1 +0.5	3.2
ssa	0.34 -0.75	31	99.0 +0.7	77.8 +1.5	70 +4	57	2.1 -0.5	2.4	10. Bombay (including Saurashtra & Kutch)	0.44 +0.04	110	98.1 +1.5	74.3 +1.3	58 -3	39	2.1 +0.3	2.6
ar	0.05 -0.55	8	101.1 +1.8	73.2 +1.9	45 +1	27	1.1 -0.5	1.2	11. Hyderabad	0.26 -0.51	34	102.6 +1.3	77.5 +1.4	40 -7	19	2.9 +1.0	4.2
ar Pradesh	0.01 -0.31	3	101.3 +2.2	71.5 +2.4	38 +2	23	0.5 -0.8	1.0	12. Madras (including Travancore-Cochin.)	2.25 +0.66	142	95.9 +0.1	78.6 +0.6	69 -2	56	3.8 +0.5	3.9
jab (I) (Including PEPSU and ii)	0.11 -0.29	27	99.7 +2.6	68.6 +1.1	42 +3	22	0.9 -0.8	1.5	13. Mysore	3.76 +1.85	197	94.6 +0.1	71.9 +1.4	74 +6	33	3.4 +0.7	5.0
asthan	0.01 -0.17	6	100.3 +1.4	71.6 +1.1	31 -3	14	1.0 -0.3	1.5	Mean of India	0.80 -0.21	79	99.5 +1.5	74.0 +1.5	47 -2	31	2.0 0	2.6
division									Sub-division—Contd.								
Islands	5.78 +3.42	245	87.9 -1.2	75.0 +0.3	75 +2	82	4.7 +1.0	5.0	15. Madhya Pradesh, East	0.07 -1.00	7	103.3 +2.9	76.7 +3.0	35 -5	19	2.0 +0.1	3.3
m (Including anipur & Tri-ra)	6.04 -1.89	76	88.7 +3.1	69.9 +2.3	76 +1	66	4.2 -0.3	3.5	16. Madhya Pradesh, West	0.01 -0.30	3	104.1 +1.6	75.4 +2.1	24 -5	14	2.2 +0.8	3.0
t Bengal	1.62 -0.11	94	98.2 +1.1	76.2 +2.0	62 -2	46	2.2 -0.6	2.0	17. Gujarat	0.01 -0.01	50	104.1 +1.9	73.7 +1.3	43 -6	17	1.2 +0.1	1.3
sa	0.34 -0.75	31	99.0 +0.7	77.8 +1.5	70 +4	57	2.1 -0.5	2.4	18. Saurashtra and Kutch	0 -0.04	0	98.6 +1.8	72.5 +0.5	63 -2	42	1.3 -0.2	1.1
ia Nagpur	0.09 -0.65	12	101.5 +0.9	74.7 +2.1	40 -1	21	1.5 -0.2	2.1	19. Konkan	0.53 +0.18	151	90.4 +1.4	77.8 +1.6	73 -1	67	2.7 -0.2	2.8
ar	0.03 -0.51	6	100.9 +2.5	72.2 +1.8	48 +3	31	0.9 -0.7	0.6	20. Deccan (Desh)	0.79 -0.02	98	101.5 +1.2	72.5 +1.5	48 -3	27	2.7 +1.2	4.5
ar Pradesh,	0 -0.27	0	102.8 +2.2	72.4 +2.2	40 +4	25	0.3 -0.8	0.7	21. Hyderabad, North	0.23 -0.41	36	102.5 +1.3	77.0 +1.7	34 -5	16	2.8 +1.1	4.3
ar Pradesh	0.02 -0.35	5	99.5 +2.3	70.3 +2.7	36 -1	19	0.8 -0.7	1.5	22. Hyderabad, South	0.29 -0.59	33	102.7 +1.3	77.9 +1.2	45 -8	21	2.9 +0.9	4.1
ab (I) (Including PEPSU and ii).	0.11 -0.29	27	99.7 +2.6	68.6 +1.1	42 +3	22	0.9 -0.8	1.5	23. Coastal Andhradesa	1.55 +0.80	207	96.5 -0.2	78.8 +0.7	73 +2	63	4.4 +0.9	3.3
nu & Kashmir	3.95 -0.38	91	71.5 +0.7	49.0 +1.1	54 -5	46	4.0 +0.4	4.6	24. Rayalaseema	2.27 +1.65	366	104.8 +0.6	80.6 +0.7	47 -6	23	2.1 +0.1	3.3
asthan, West	0.02 -0.17	11	100.6 +1.7	71.5 +2.1	36 -3	15	1.0 -0.5	1.6	25. Tamilnad	0.89 -0.65	58	95.9 -0.1	78.5 +1.1	69 -4	52	3.4 +0.3	3.9
asthan, East (including Ajmer)	0.01 -0.18	5	100.1 +1.0	71.8 +0.3	27 -4	12	1.1 -0.2	1.4	26. Malabar and South Kanara	4.39 +1.83	171	91.5 +0.3	79.3 +0.8	74 0	69	3.9 +0.1	3.7
hya Bharat	0 -0.19	0	101.1 +0.9	71.3 +1.2	22 -7	11	1.3 +0.1	2.0	27. Mysore	3.76 +1.85	197	94.6 +0.1	71.9 +1.4	74 +6	33	3.4 +0.7	5.0
hya Pradesh	0 -0.30	0	103.2 +2.8	70.3 +0.2	30 -1	18	1.0 -0.7	1.6	28. Travancore-Cochin	8.93 +4.18	188	90.0 +0.7	76.3 -1.7	75 -1	71	5.3 +1.5	6.3

NOTE.—The entries in the second line for each division and sub-division indicate departures from normal.

TABLE II—SUMMARY OF OBSERVATIONS OF TEMPERATURE, RAINFALL AND WEATHER—APRIL 1956.

Main data table with columns for Division and Station, Air temperature °F (Mean maximum, Departure from normal, Highest, Date, Mean minimum, Departure from normal, Lowest, Date), Rainfall in inches (Total fall during 0830-1730 hours, Total fall in 24 hours, Departure from normal, Heaviest fall in 24 hours, Date), No. of rainy days (0.10" or more), Wind Speed, miles per hour (Mean between 0830-1730 hours, Mean 24 hours, Departure from normal), and Weather phenomena—No. of days with (Precipitation, Snow or sleet, Hail, Thunder heard, Fog, Dust storm, Ground frost, Gale, Squall).

*Data not available

†Observations for 29 days.

(R) Register not received.

(d) Mean of 27 days.

Name and Station.	Air temperature in °F.								Rainfall inches.					No. of rainy days (0.10' or more).		Wind speed, miles per hour.			Weather phenomena—No. of days with.									
	Mean maximum.	Departure from normal.	Highest.	Date.	Mean minimum.	Departure from normal.	Lowest.	Date.	Total fall during 0830-1730 hours.	Total fall in 24 hours.	Departure from normal.	Heaviest fall in 24 hours.	Date.	Total in the month.	Departure from normal.	Mean between 0830-1730 hours.	Mean 24 hours.	Departure from normal.	Precipitation (0.1" or more).	Snow or sleet.	Hail.	Thunder heard.	Fog.	Dust-storm.	Ground frost.	Gale.	Squall.	Line squall.
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Contd. (Aerocole)	95.3	..	99	23	70.3	..	65	1	0.42	1.00	..	0.41	7	4	..	..	..	..	5	0	0	3	1	0	0	0	1	0
Cochin	88.8	+0.2	92	15, 16	78.2	-0.5	72	30	2.01	12.35	+7.41	6.32	29	10	+3.3	8.9	7.1	+1.8	13	0	0	16	0	0	0	0	1	0
Cochin (Naval Air Base)	90.2	..	93	20	78.0	..	71	6	3.36	15.28	..	6.97	29	11	..	6.7	4.5	..	14	0	0	19	0	0	0	0	7	0
Coimbatore	90.9	..	93	11, 12, 30	77.8	..	73	11, 12, 30	1.18	8.80	..	3.65	11	9	..	10.5	8.5	..	13	0	0	17	0	0	0	0	2	0
Coimbatore (Aerocole)	91.2	+1.1	94	3, 15	77.7	+0.5	71	28	3.01	5.50	+0.95	4.13	29	5	-1.9	8.2	5.3	+1.0	10	0	0	15	0	0	0	0	0	0
Coimbatore	91.2	..	94	8	78.0	..	70	8	..	4.41	..	3.24	29	5	..	..	7.6	..	6	0	0	6	0	0	0	0	0	0
Cochin (excluding Cochin)	76.8	..	90	19	60.4	..	50	23	1.09	4.47	..	1.02	5	10	..	4.7	4.1	..	14	0	1	4	0	0	0	0	0	0
Coimbatore	75.9	+1.8	85	19	57.3	+0.3	50	8	1.83	4.46	-0.64	0.98	23	6	-3.2	4.3	4.0	-1.2	12	0	2	7	1	0	0	0	0	0
Coimbatore	72.6	+1.3	80	18, 19	60.3	+1.4	54	21, 23	2.84	15.28	-10.95	4.44	21	10	+6.0	6.8	4.4	-2.2	16	..	..	..	..	..	..	..	..	..
Coimbatore	61.8	-1.4	71	20, 21	52.6	+2.0	48	16	0	2.72	-1.42	1.17	28	5	-2.5	2.2	2.1	-0.1	12	0	0	3	21	5	0	0	0	0
Coimbatore	76.4	+2.3	79	4 days	59.3	-0.2	55	3	0.60	3.50	+0.77	1.30	28	8	+2.2	4.2	3.0	-4.9	8	0	0	0	3	0	0	0	0	0
Coimbatore	87.2	+3.3	96	22	54.6	+2.1	47	14	0.42	2.39	+1.88	0.67	4	5	+1.8	1.6	0.7	-0.6	7	0	0	5	2	0	0	1	0	0
Coimbatore (Kumaon)	72.7	+4.8	82	29	53.7	+3.4	46	4, 9, 10	0.03	0.13	-1.28	0.10	4	1	-2.3	10.0	8.9	+2.2	2	0	0	5	0	0	0	0	0	0
Coimbatore	71.7	..	78	22, 29, 30	54.7	..	47	5	0	0.47	..	0.32	23	2	..	6.5	4.6	..	2	0	1	0	0	0	0	0	0	0
Coimbatore	75.2	..	85	30	51.4	..	40	12	..	0.84	..	0.12	4, 9	3	..	..	..	..	12	..	..	..	..	..	..	..	..	..
Coimbatore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coimbatore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coimbatore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coimbatore	73.6	+4.4	84	22	56.4	+3.6	46	14	0.33	0.39	-0.94	0.27	14	1	-2.8	6.3	5.0	-0.2	4	0	0	5	0	0	0	0	0	0
Coimbatore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coimbatore	69.5	+3.6	79	29	54.2	+3.6	42	9	0.46	0.99	-0.82	0.34	9	4	-0.1	2.7	1.9	-2.0	7	0	4	6	0	1	0	0	0	0
Coimbatore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coimbatore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coimbatore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coimbatore	76.1	..	85	30	54.3	..	40	4	0.06	1.55	-1.44	0.55	10	4	-1.7	2.0	4.0	..	5	0	0	0	0	0	0	0	0	0
Coimbatore	75.2	..	..	..	59.1	..	..	..	0.10	1.34	..	..	..	..	..	3.6	2.7	..	6	0	1	7	0	0	0	0	0	0
Coimbatore	93.9	+2.0	98	19, 21	68.6	-0.2	58	2, 7	0	0.05	-0.32	0.05	17	0	-0.9	5.3	4.5	+0.3	1	0	0	1	0	0	0	0	0	0
Coimbatore	86.1	+1.8	95	30	68.8	+0.5	57	9	0	0	-0.11	0	..	0	-0.3	6.2	5.7	-0.2	0	0	0	0	0	0	0	0	0	0
Coimbatore	88.8	+3.4	95	20	67.3	+1.2	56	15	0.35	1.79	+0.61	1.39	15	2	+0.5	7.1	8.4	+1.4	4	0	0	4	0	0	0	0	0	0
Coimbatore	85.9	..	90	23	65.1	..	62	2, 7, 9	..	0.82	..	0.70	30	2	..	..	..	..	2	0	0	0	2	0	0	1	0	0
Coimbatore	80.9	-2.8	86	13	65.2	+1.3	61	1, 6	0.70	5.09	+2.53	2.56	30	8	+2.9	6.0	5.9	+2.7	8	0	0	3	0	0	0	0	0	0
Coimbatore	68.7	+0.5	71	7 days	53.3	+0.2	50	9	2.82	6.24	+1.42	1.46	23	12	+4.3	8.5	8.7	+1.2	16	0	0	11	0	0	0	0	0	0
Coimbatore	71.9	+0.4	74	22, 28	52.2	+0.7	49	3, 17	3.38	4.74	+1.70	0.92	28	11	+4.5	4.4	3.0	-0.3	15	0	0	11	0	0	0	0	0	0
Coimbatore	77.0	+2.4	82	27	57.5	+1.0	52	9	..	3.68	-2.19	1.10	29	9	+2.1	..	4.0	+0.8	12	0	4	9	1	0	0	0	0	0
Coimbatore	..	..	..	..	..	..	..	..	..	1.39	..	0.40	3	6	..	..	..	..	7	..	..	..	..	..	..	..	..	..
Coimbatore	..	..	..	..	..	..	..	..	..	1.00	..	0.23	24	4	..	..	..	..	9	..	..	..	..	..	..	..	..	..
Coimbatore	62.6	..	67	6 days	32.1	..	22	3, 9, 13	..	3.60	..	0.94	3	8	..	..	..	..	10	..	..	..	..	..	..	..	..	..
Coimbatore (Chumbi)	61.4	+4.3	68	18	35.4	+0.5	27	4	..	1.97	-1.94	0.51	12	7	-3.4	..	..	..	10	0	0	0	0	0	0	0	0	0
Coimbatore (R)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coimbatore	88.3	-0.5	91	9	76.1	+0.2	72	23, 29	2.89	9.98	+0.55	4.15	29	8	-2.9	..	..	..	14	0	0	2	0	0	0	0	0	0
Coimbatore	93.6	+1.9	102	26	79.0	+1.4	75	10, 29	0.09	0.84	-1.18	0.43	29	3	-0.3	..	..	..	8	0	0	5	0	0	0	0	0	0
Coimbatore	88.3	..	93	27	77.0	..	73	10	0.28	0.59	..	0.23	20	3	..	..	..	..	6	0	0	6	0	0	0	0	0	0
Coimbatore	88.5	+0.7	93	25	77.2	+1.1	75	10 days	0.71	1.69	-2.08	0.64	23	5	-1.2	..	..	..	8	0	0	3	0	0	0	0	0	0
Coimbatore	91.6	..	97	8	79.9	..	77	9 days	0.03	0.76	..	0.71	19	1	..	..	..	..	3	0	0	7	0	0	0	0	0	0
METEOROLOGICAL OBSERVATIONS for Catchment	103.8	..	110	21	73.4	..	61	7	0.02	0.04	..	0.02	23, 24	0	..	6.7	4.9	..	2	0	0	2	0	0	0	0	0	0
Coimbatore	98.5	..	105	22	71.9	..	63	7, 8	0.01	0.02	..	0.01	24	0	..	7.8	5.5	..	2	0	0	2	0	0	1	0	0	0

() Mean of 29 days. (R) Register not received. *Data not available. †Observations for 28 days. J. G. Obs./59

TABLE II—SUMMARY OF OBSERVATIONS OF TEMPERATURE, RAINFALL AND WEATHER—APRIL 1956—

Division and Station.	Air temperature in °F.								Rainfall in inches.					No. of rainy days (0.10" or more)		Wind speed miles per hour.			Weather phenomena—No. of days with									
	Mean maximum.	Departure from normal.	Highest.	Date.	Mean minimum.	Departure from normal.	Lowest.	Date.	Total fall during 0830-1730 hours.	Total fall in 24 hours.	Departure from normal.	Heaviest fall in 24 hours.	Date.	Total in the month.	Departure from normal.	Mean between 0830-1730 hours.	Mean 24 hours.	Departure from normal.	Precipitation (.01" or more).	Snow or sleet.	Hail.	Thunder heard.	Fog.	Dust storm.	Ground frost.	Gale.	Squall.	
																												2
HYDROMETEOROLOGICAL OBSERVATORIES—Contd.																												
Deosodar Catchment—Contd.																												
Barhi*																												
Ramgarh	104.8	..	111	21	70.9	..	60	7, 8	0	0	..	0	..	0	..	4.9	2.6	..	0	0	0	1	0	0	1	0	0	
Panchet Hills	104.0	..	113	21, 22	75.8	..	67	6, 7	0.29	0.54	..	0.47	23	1	..	7.6	6.4	..	2	..	..	..	..	..	..	..	..
Asansol	..	..	..	..	..	..	..	..	..	0.24	..	0.17	23	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Dhanwar	..	..	..	..	..	..	..	..	..	0	..	0	..	0	..	..	..	..	..	..	..	..	..	..	..	..	..
Duturi	..	..	..	..	..	..	..	..	..	0	..	0	..	0	..	..	..	..	..	..	..	..	..	..	..	..	..
Bishungarh	..	..	..	..	..	..	..	..	..	0.02	..	0.02	25	0	..	..	..	..	..	..	..	..	..	..	..	..	..
Palganj (Ghidih)	..	..	..	..	..	..	..	..	..	0.18	..	0.12	23	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Chandwa	..	..	..	..	..	..	..	..	..	0.04	..	0.04	22	0	..	..	..	..	..	..	..	..	..	..	..	..	..
Majumdi Catchment																												
Baramul	105.0	..	110	25	73.5	..	66	7	0	0	..	0	..	0	..	2.5	1.6	..	0	0	0	5	0	0	0	0	0	
Hirakud	106.9	..	113	23	78.9	..	69	7	0	0	..	0	..	0	..	2.4	2.7	..	0	0	0	1	0	0	0	0	0	
Barkachar**	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sodepur	106.6	..	111	22	78.9	..	69	7	..	0	..	0	..	0	..	..	..	..	..	..	..	..	..	..	..	..	..
Giasbar	104.4	..	109	21, 22	71.7	..	63	8, 9	..	0	..	0	..	0	..	..	..	..	..	..	..	..	..	..	..	..	..
Narbadra Catchment																												
Punasa†	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bagra Tawa	105.3	..	110	22	73.3	..	61	5, 6	0	0.12	..	0.12	17	1	..	5.0	3.2	..	1	0	0	1	0	0	0	0	0	
Thikri	106.2	..	112	30	75.7	..	66	5, 7	..	0	..	0	..	0	..	..	..	..	..	..	..	..	..	..	..	..	..
Tapti Catchment																												
Nandurbar	106.2	..	110	2	77.0	..	72	9	..	0	..	0	..	0	..	..	..	..	..	..	..	..	..	..	..	..	..
Sabarmati Catchment																												
Jhadol	97.7	..	103	19, 21, 29	63.7	..	51	6	..	0.30	..	0.30	17	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Dharoi	103.3	..	111	30	72.1	..	58	6	0	0	..	0	..	0	..	..	..	..	..	..	..	..	..	..	..	..	..

*Observatory closed on 4th April, 1956.

**Temporarily closed.

†Data not available.

MONTHLY MEANS OF UPPER WINDS, APRIL 1956

During the month, observations of velocity and direction of upper winds were made at 51 stations in India. Out of these, at 42 stations all the observations were taken by means of pilot balloons and at 9 stations some observations were made by means of pilot balloons while the other observations by the radiowind method. Particulars of the stations, their co-ordinates and the approximate times of the regular pilot balloon and rawin ascents at each station are given in the table below. All radiowind ascents have been indicated by means of an asterisk (*) against the scheduled hours.

Data from ascents made at the scheduled time or within two hours on either side of the scheduled times of regular observations have been used for averaging.

Data upto 9·0 km. a.m.s.l. are given under Table IV and data above 9·0 km. a.m.s.l. under Table V.

In Tables IV and V :

n—represents the number of observations,

V—represents the mean wind speed in knots irrespective of direction,

v—represents the resultant mean velocity in knots,

D—represents the direction of the resultant mean wind in degrees East of North.

Mean and resultant winds are given in this publication for the following heights :—

Surface, 0·15 km.a.g., 0·3, 0·6, 0·9, 1·5, 2·1, 3·0, 4·5, 5·4, 6·0, 7·2, 9·0, 10·5, 12·0, 14·1, 16·2, 18·0, 20·0, 23·0, 26·0, 30·0 and 35·0 km. a.m.s.l. Of these the levels 1·5, 3·0, 5·4, 7·2, 9·0, 12·0, 14·1 and 16·2 km. a.m.s.l. are considered as the best approximations to the standard pressure levels 850, 700, 500, 400, 300, 200, 150 and 100 mb. respectively.

PARTICULARS OF PILOT BALLOON AND RAWIN STATIONS IN INDIA

Station	Lat. N	Long. E	Height of Anemometer head a.m.s.l. in metres	Date of opening	Approximate times of flight (IST)		
Agartala	23°53'	91°15'	17	28th November, 1951	0130	0730	1430
Ahmedabad	23°04'	72°38'	61	19th May, 1928	0130	0730	1430
Amausi	26°45'	80°53'	126	20th November, 1950	0130	0730	1430
Ambala	30°23'	76°46'	282	1st April, 1941	0130	0730	1430
Anantapur	14°41'	77°37'	364	12th February, 1946		0730	1430
Asansol	23°41'	86°59'	126	29th May, 1942	0130	0730	1430
Baghdogra	26°38'	88°19'	138	7th June, 1953		0730	1430
Bairagarh	23°17'	77°21'	524	26th February, 1943	0130	0730	1430
Bamrauli	25°27'	81°44'	103	28th February, 1930	0130	0830*	1430 2030*
Bangalore	12°58'	77°35'	936	19th May, 1915	0130	0730	1430
Bareilly	28°22'	79°24'	180	12th January, 1943		0730	1430
Begumpet	17°27'	78°28'	542	1st September, 1929	0130	0730	1430
Bhagalpur	25°14'	86°57'	60	19th May, 1950		0730	1430
Bhubaneshwar	20°15'	85°50'	45	5th December, 1942	0130	0730	1430
Bhuj	23°15'	69°48'	111	14th September, 1937	0130	0730	1430
Bikaner	28°00'	73°18'	228	18th October, 1946	0130	0730	1430
Chikalhana	19°51'	75°24'	583	7th October, 1951	0130	0730	1430
Cochin †	09°58'	76°14'	3	16th March, 1942	0130	0730	1430
Dum Dum	22°39'	88°27'	11	14th May, 1921	0130	0830*	1430 2030*
Gadag	15°25'	75°38'	650	3rd May, 1943	0130	0730	1430
Gauhati	26°05'	91°43'	55	12th March, 1955	0130	0830*	1430 2030*
Gaya	24°45'	84°57'	113	19th March, 1937	0130	0730	1430
Gopalpur	19°16'	84°53'	24	15th February, 1946	0130	0730	1430
Gorakhpur	26°45'	83°22'	83	5th January, 1943		0730	1430
Gwalior	26°14'	78°15'	211	7th May, 1938	0130	0730	1430
Imphal	24°51'	93°58'	798	8th March, 1952		0730	1430
Jabalpur	23°10'	79°57'	402	30th July, 1928	0130	0730	1430
Jagdalpur	19°05'	82°02'	561	25th March, 1948	0130	0730	1430
Jaipur	26°49'	75°48'	387	6th June, 1953		0730	1430
Jamshedpur	22°49'	86°11'	144	23rd July, 1942		0730	1430
Jharsuguda	21°55'	84°05'	234	1st May, 1944	0130	0730	1430
Jodhpur	26°18'	73°01'	228	15th October, 1934	0130	0830	1430 2030*
Madras	13°00'	80°11'	29	8th April, 1926	0130	0830*	1430 2030*
Mangalore	12°52'	74°51'	40	4th June, 1928	0130	0730	1430
Masulipatam	16°11'	81°08'	9	8th April, 1942	0130	0730	1430
Minicoy	08°18'	73°00'	14	14th April, 1941	0130	0730	1430
Mohanbari	27°29'	95°01'	110	1st June, 1948	0130	0730	1430
Mussoorie	30°27'	78°05'	2050	3rd November, 1955		0730	1430
Nagpur	21°09'	79°07'	316	23rd April, 1943	0130	0830*	1430 2030*
New Delhi	28°35'	77°12'	227	20th October, 1936	0130	0830*	1430 2030*
Poona	18°32'	73°51'	560	5th January, 1925	0130	0730	1430 2030*
Port Blair	11°40'	92°43'	92	29th October, 1945	0130	0730	1430
Raipur	21°14'	81°39'	308	15th July, 1944	0130	0730	1430
Santacruz	19°05'	72°53'	12	14th May, 1933	0130	0830*	1430 2030*
Tezpur	26°37'	92°47'	78	12th August, 1932	0130	0730	1430
Tiruchirapalli	10°46'	78°43'	95	22nd June, 1936	0130	0730	1430
Trivandrum	08°29'	76°57'	72	8th December, 1928	0130	0730	1430
Udaipur	24°35'	73°42'	587	24th June, 1947	0130	0730	1430
Vengurla	15°52'	73°38'	8	22nd November, 1941	0130	0730	1430
Veraval	20°54'	70°22'	16	13th October, 1941	0130	0730	1430
Visakhapatnam	17°43'	83°14'	9	24th September, 1928	0130	0730	1430

*Radiowind ascents.
†Naval Meteorological Office.

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

April 1956

Station	AGARTALA												AHMEDABAD															
	0130				0730				1430				0130				0730				1430							
Height in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	5.6	4.6	165	30	5.8	5.3	177	30	7.0	5.5	197	30	6.2	4.9	293	30	4.6	3.4	320	30	5.1	3.9	296				
5 a. g.	27	13.5	10.4	184	29	11.5	9.9	175	30	10.8	8.9	201	30	19.7	16.4	307	30	15.5	12.0	327	30	7.6	5.0	305				
a.m.s.l.	27	14.5	12.0	194	29	14.2	11.8	198	30	10.7	8.9	201	30	20.5	17.4	309	30	19.4	15.2	328	30	8.4	5.4	299				
„	27	15.7	13.2	207	28	14.2	12.5	210	30	10.8	9.1	202	30	18.5	15.5	315	30	19.9	16.0	328	30	7.9	4.8	300				
„	26	14.6	12.1	215	28	14.7	12.3	220	30	12.0	10.7	209	30	13.7	10.8	315	30	16.5	11.8	327	30	7.6	5.0	297				
„	25	12.7	9.8	244	24	13.6	10.0	241	29	13.4	11.1	230	28	9.9	5.1	297	29	11.5	6.9	315	30	10.3	7.9	284				
„	23	14.1	11.9	268	19	13.2	11.1	264	26	14.4	12.7	262	24	11.7	7.1	264	24	11.8	9.2	287	30	13.1	9.9	272				
„	18	19.8	19.5	289	15	19.5	18.5	276	18	20.7	19.7	282	17	13.3	6.7	246	19	15.0	10.3	275	30	17.9	13.2	251				
„					5	18.6	16.8	308	15	23.2	20.6	283	1	20.0	20.0	155	11	13.1	8.7	244	26	16.3	12.5	257				
„					3	13.3	9.3	303	13	21.8	20.6	281					7	17.6	9.6	293	24	18.4	13.9	257				
„					3	18.7	15.6	315	11	20.8	19.7	280					5	16.0	9.9	335	24	19.1	14.6	260				
„								8	24.1	21.2	266					1	22.0	22.0	040	18	25.9	21.0	267					
„								5	37.0	29.8	265									7	45.8	33.6	282					

Station	AMAUSI												AMBALA															
	0130				0730				1430				0130				0730				1430							
Height in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	3.3	2.4	305	30	3.3	1.3	288	30	9.3	8.2	302	30	6.4	3.6	340	30	4.7	1.2	354	30	6.6	4.7	299				
5 a. g.	30	15.3	11.0	318	30	12.8	6.6	302	30	12.4	9.9	292	30	16.7	10.3	355	30	14.6	5.4	359	30	11.7	9.1	303				
a.m.s.l.	30	15.8	10.5	320	30	12.8	6.4	305	30	12.2	7.1	300	30	9.5	5.5	351	30	7.2	2.0	342	30	9.1	6.7	300				
„	30	16.2	13.8	317	30	12.8	6.0	309	30	11.8	10.0	294	30	17.3	10.0	349	30	15.7	7.8	331	30	12.0	9.4	307				
„	30	15.4	14.4	308	30	13.2	11.4	306	30	11.6	10.0	293	30	17.2	10.7	339	30	14.5	9.3	330	30	12.6	9.8	309				
„	30	15.2	15.1	301	30	13.7	12.7	300	30	12.1	10.6	295	30	16.2	9.2	320	30	12.8	7.2	343	30	13.1	10.3	307				
„	30	19.2	18.4	293	30	16.8	14.8	301	30	14.2	12.2	297	30	15.5	9.1	301	29	11.7	8.7	321	30	12.6	9.8	302				
„	21	19.9	17.1	282	22	19.8	17.9	290	30	19.2	17.6	295	27	15.1	8.0	297	29	12.0	7.5	297	30	15.0	8.0	291				
„	2	9.0	7.9	320	7	28.0	25.2	297	30	27.1	25.4	287	3	18.3	17.1	296	21	15.1	9.4	275	28	17.6	12.8	289				
„	1	9.0	9.0	360	2	20.0	18.4	336	25	27.3	25.7	282	2	23.5	22.2	280	18	17.2	10.1	288	26	21.3	17.8	274				
„					1	16.0	16.0	305	23	28.8	28.0	283	2	24.5	23.7	289	3	18.4	10.2	290	26	25.3	21.8	273				
„								11	29.9	27.6	275	1	23.0	23.0	290	6	24.1	21.0	287	22	31.5	28.0	275					
„								4	26.0	24.7	265									13	37.6	34.5	267					

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

April 1956

Station	ANANTAPUR								ASANSOL								BAGHDOGRA											
	0730				1430				0130				0730				1430				0730							
Time in I. S. T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	4.6	2.5	256	30	4.6	3.0	048	30	4.7	2.0	187	30	4.5	2.1	198	30	3.9	2.1	248	30	6.1	5.5	059				
0.15 a. g.	30	9.4	5.4	256	29	6.2	4.8	058	30	12.5	4.0	211	30	9.3	3.8	220	30	8.2	4.7	248	30	12.6	11.9	063				
0.3 a.m.s.l.									30	12.8	4.3	222	30	9.4	4.3	223	30	8.3	4.7	250	30	12.8	12.3	071				
0.6 "	30	10.7	6.1	268	29	6.4	4.7	057	29	15.6	5.0	253	29	10.7	5.0	265	30	8.6	4.7	264	29	15.5	14.6	084				
0.9 "	30	11.1	3.6	277	29	6.6	4.4	063	29	15.0	7.4	283	26	13.3	8.1	295	30	8.5	5.3	272	29	15.2	14.7	084				
1.5 "	30	9.3	2.4	130	29	7.1	4.2	067	28	13.8	8.9	292	23	15.6	12.5	306	30	8.9	7.5	278	27	10.3	8.7	083				
2.1 "	29	10.2	7.6	091	29	7.4	4.5	077	26	15.2	13.4	290	22	19.8	18.0	303	29	11.1	9.8	285	23	7.9	0.9	178				
3.0 "	29	15.0	12.2	064	29	12.6	8.5	071	12	21.0	20.3	293	10	19.7	17.7	303	27	18.5	17.7	298	11	18.5	16.8	278				
4.5 "	27	15.3	13.9	059	28	11.1	8.7	070					1	17.0	17.0	320	17	25.4	23.7	302	4	26.0	25.0	277				
5.4 "	25	13.0	6.9	080	25	12.6	5.6	059					1	19.0	19.0	320	14	26.8	24.4	294	2	17.5	17.3	295				
6.0 "	24	15.4	4.0	067	25	13.9	5.1	043									10	24.8	23.4	283	1	26.0	26.0	295				
7.2 "	16	16.4	4.6	297	22	17.7	4.6	345									6	29.2	27.3	271	1	19.0	19.0	275				
9.0 "	7	17.4	3.7	186	13	23.6	14.8	230									2	43.5	42.7	246								

Station	BAGHDOGRA				BAIRAGARH								BAMRAULI															
	1430				0130				0730				1430				0130				0830*							
Time in I. S. T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	4.9	4.1	105	30	4.2	3.1	290	30	3.3	2.2	328	30	5.7	4.9	287	30	2.0	1.2	272	28	3.9	2.3	270				
0.15 a. g.	30	6.0	4.8	104	30	17.7	11.9	326	30	16.3	10.5	349	30	7.8	6.0	287	30	12.1	8.5	318	27	6.1	3.7	290				
0.3 a.m.s.l.	30	6.1	4.9	106													30	12.3	9.1	316	27	6.8	4.4	290				
0.6 "	30	6.9	5.5	105	30	17.0	11.0	321	30	14.1	8.6	345	30	7.9	6.1	287	30	13.5	11.2	316	27	9.6	6.2	295				
0.9 "	30	6.5	4.4	126	30	16.7	11.6	325	30	16.5	11.3	357	30	8.3	6.6	293	30	13.5	12.1	304	27	10.3	8.7	300				
1.5 "	30	7.0	3.6	232	30	12.7	9.2	317	30	12.6	8.6	344	30	10.3	7.7	294	26	14.1	12.9	292	27	14.6	13.1	300				
2.1 "	25	13.0	11.2	269	30	11.5	7.6	295	29	12.5	8.7	296	30	8.8	6.3	288	18	17.2	15.1	281	27	17.8	16.0	290				
3.0 "	17	17.3	16.7	286	21	11.1	7.3	264	28	13.3	9.3	273	29	14.3	9.4	283	8	17.5	15.3	270	27	22.2	20.5	285				
4.5 "	8	22.1	20.5	284					16	15.6	8.2	277	27	18.8	13.1	272					27	24.7	22.4	280				
5.4 "	3	21.7	19.4	287					12	14.1	5.6	260	24	20.6	14.0	283					27	25.9	22.6	275				
6.0 "	3	23.3	20.0	276					11	15.5	6.1	237	22	21.1	15.3	287					25	28.8	25.9	275				
7.2 "									1	10.0	10.0	020	14	27.4	23.2	284					25	33.9	29.4	270				
9.0 "									1	30.0	30.0	350	9	36.0	27.8	274					19	44.0	39.3	270				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9·0 Km. above mean sea level

April 1956

Station	BAMRAULI								BANGALORE								BAREILLY							
	1430				2030*				0130				0730				1430				0730			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	10·1	8·9	297	30	3·2	2·5	315	30	6·8	3·4	221	30	6·2	3·8	235	30	6·7	2·1	065	30	4·1	1·7	304
5 a.g.	30	13·9	12·7	299	30	7·9	6·8	315	29	14·0	7·8	186	30	11·0	6·0	235	30	8·3	3·5	075	30	14·5	8·2	321
a.m.s.l.	30	14·4	13·1	299	30	8·9	7·5	320													30	13·1	7·4	322
„	30	14·5	13·2	297	30	11·3	10·4	310													30	17·2	13·2	307
„	30	13·4	12·7	295	30	12·1	11·0	305													33	17·4	13·9	302
„	30	12·5	12·1	292	30	14·7	13·7	290	29	16·0	6·9	153	28	11·1	1·2	208	30	9·6	4·8	057	30	15·5	13·7	301
„	29	14·3	13·5	292	30	16·7	15·9	280	28	13·0	9·3	094	28	11·5	8·5	073	29	9·1	6·0	073	28	15·5	13·9	297
„	29	19·7	17·8	286	30	20·1	18·2	280	19	14·7	13·6	059	27	16·2	15·2	063	24	12·3	10·8	067	26	18·7	16·8	297
„	28	26·4	24·6	279	30	24·4	21·4	285	8	12·7	10·0	074	25	15·9	14·1	074	13	14·1	11·1	060	9	19·0	17·3	298
„	22	25·7	22·3	284	30	24·8	22·4	280	1	10·0	10·0	070	23	11·0	6·1	079	10	15·9	11·1	060	6	16·2	15·0	289
„	21	28·0	24·9	280	30	25·6	23·2	280	1	7·0	7·0	125	20	10·7	3·9	092	8	16·3	9·0	052	5	16·6	14·5	271
„	15	31·2	26·6	281	30	30·4	27·1	275					12	12·0	6·0	200	6	15·5	3·7	107				
„	2	45·0	44·6	246	24	40·0	34·2	265					6	19·8	18·0	214	5	18·8	5·0	165				

Station	BAREILLY				BEGUMPET								BHAGALPUR															
	1430				0130				0730				1430				0730				1430							
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	5·7	4·8	296	30	5·1	2·0	120	30	4·3	1·1	311	30	4·6	1·8	094	30	4·2	1·4	131	30	9·8	5·4	275				
5 a.g.	30	10·3	8·3	289	30	13·3	5·6	144	30	11·9	3·2	290	30	6·3	2·7	090	30	9·4	1·2	202	30	15·5	8·5	299				
a.m.s.l.	30	9·9	8·3	291													30	10·9	2·3	234	30	15·6	9·6	299				
„	30	11·8	9·8	287	30	8·9	3·1	138	30	7·7	1·7	291	30	6·1	3·7	046	30	13·8	5·6	248	30	14·4	7·9	302				
„	30	11·5	10·0	288	30	14·9	7·1	145	30	14·4	2·1	280	30	6·6	3·2	077	29	14·6	9·6	273	28	13·6	7·8	295				
„	30	12·3	10·7	287	29	10·2	4·8	111	30	10·8	0·1	044	30	6·8	3·1	054	27	17·2	14·7	286	23	12·5	9·1	280				
„	30	14·0	12·5	288	29	9·0	4·3	051	29	9·4	3·2	055	30	7·3	3·7	054	23	17·0	15·3	283	19	16·2	14·8	271				
„	30	19·3	17·3	289	27	10·1	6·5	020	29	10·2	6·0	062	30	9·5	6·3	054	15	19·2	18·3	295	18	22·6	21·5	280				
„	29	25·4	23·3	288	3	9·3	6·4	021	28	11·3	7·5	075	24	12·4	5·6	057	3	11·0	8·2	300	11	29·1	27·6	287				
„	25	26·9	24·9	285					26	12·6	5·8	058	21	16·1	6·1	053	2	19·5	19·5	314	7	23·6	22·6	290				
„	21	29·3	27·5	284					26	13·1	2·0	038	20	17·7	3·6	046	2	20·5	20·5	317	6	27·7	25·5	287				
„	16	36·5	34·7	276					11	16·0	9·6	252	19	21·8	2·7	055					3	29·7	24·1	270				
„	5	35·0	33·5	271					4	32·5	19·9	311	15	28·2	5·9	258					1	50·0	50·0	340				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

April 1956

Station	BHUBANESHWAR												BHUJ											
	0130				0730				1430				0130				0730				1430			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	30	14.1	13.1	214	30	11.6	10.7	211	30	15.0	12.6	188	30	3.8	3.3	257	30	2.5	2.1	243	30	4.6	3.5	269
0.15 a.g. . .	30	18.1	17.2	212	30	12.3	11.5	209	30	12.6	10.9	186	30	16.5	14.7	278	30	14.6	12.7	276	30	8.5	6.5	271
0.3 a.m.s.l. .	30	18.9	17.7	211	30	13.4	11.9	216	30	12.5	9.8	188	30	17.8	16.2	282	30	17.2	14.9	290	30	8.6	6.7	270
0.6 " . . .	19	18.3	15.7	212	21	12.5	9.9	224	30	11.5	9.6	197	30	20.6	18.5	284	30	20.7	18.8	298	30	9.5	8.0	276
0.9 " . . .	17	16.2	13.1	207	19	11.9	7.2	235	30	8.7	5.2	212	30	15.0	12.0	283	30	16.9	13.6	292	30	10.9	9.0	278
1.5 " . . .	15	9.2	4.9	218	17	9.1	3.1	260	29	8.9	3.2	300	30	14.3	9.6	265	30	14.9	10.7	280	30	10.8	9.2	277
2.1 " . . .	13	7.1	3.2	322	15	6.9	2.6	323	28	9.4	6.9	323	28	12.4	8.2	271	30	16.2	11.1	270	30	12.4	10.6	265
3.0 " . . .	9	8.5	6.7	338	13	8.3	5.8	360	28	12.5	10.5	317	25	15.6	11.2	248	29	16.2	11.5	260	30	17.0	14.5	251
4.5 " . . .	1	8.0	8.0	160	8	12.0	6.1	336	22	14.4	9.6	319	7	19.1	16.0	230	21	20.5	16.0	245	30	20.3	15.4	244
5.4 " . . .	1	8.0	8.0	150	6	13.0	9.0	220	19	18.9	12.0	315	4	22.0	12.6	234	17	21.3	15.6	235	26	20.4	13.9	238
6.0 " . . .	1	6.0	6.0	095	5	14.6	13.9	222	17	19.7	13.1	298	2	22.5	3.3	266	15	21.1	16.2	230	25	21.2	15.4	260
7.2 " . . .					3	17.7	17.5	218	12	27.4	18.0	286					6	15.7	12.1	262	21	26.2	20.1	269
9.0 " . . .					1	35.0	35.0	235	8	36.9	20.5	274					2	39.0	38.9	269	9	34.2	24.3	268

Station	BIKANER												CHIKALTHANA											
	0130				0730				1430				0130				0730				1430			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	30	3.5	0.5	323	30	3.5	2.0	213	30	4.2	2.6	262	30	7.1	3.8	321	30	5.1	3.9	311	30	5.9	1.7	283
0.15 a.g. . .	30	15.0	2.3	350	30	13.3	3.1	188	30	9.7	5.4	279	30	16.4	10.5	334	30	12.2	9.0	331	30	8.1	2.2	351
0.3 a.m.s.l. .	30	14.0	1.3	330	30	10.7	4.7	193	30	8.5	5.1	258												
0.6 " . . .	30	15.6	4.5	300	30	14.3	3.9	284	30	9.9	6.9	257												
0.9 " . . .	29	14.6	7.1	288	29	14.4	5.6	271	30	10.1	7.1	260	29	19.1	13.8	344	30	16.0	11.3	355	30	6.9	3.1	353
1.5 " . . .	27	13.9	11.0	274	29	14.8	9.5	263	29	10.6	8.8	259	29	18.4	12.5	355	30	15.8	10.3	008	30	7.6	2.8	332
2.1 " . . .	22	15.8	12.2	267	27	14.4	9.4	283	28	12.1	8.9	258	29	9.9	5.8	008	30	11.3	4.7	012	30	8.3	2.4	331
3.0 " . . .	17	15.9	14.9	296	22	18.0	11.5	274	28	14.5	11.4	253	27	9.1	2.6	114	29	9.1	2.1	154	30	10.1	0.7	236
4.5 " . . .	2	17.0	15.4	270	11	23.2	18.0	280	25	20.1	17.6	266	8	11.0	4.6	155	21	12.9	2.7	190	23	11.4	2.9	247
5.4 " . . .	1	16.0	16.0	265	7	24.9	22.5	277	23	21.0	19.7	275	1	12.0	12.0	165	17	10.1	1.4	303	22	13.8	2.4	278
6.0 " . . .	1	18.0	18.0	270	5	28.4	23.8	268	20	24.1	22.5	277	1	14.0	14.0	235	17	12.4	4.1	281	19	15.5	8.1	292
7.2 " . . .					1	19.0	19.0	255	10	32.4	30.3	271					5	18.2	10.9	261	11	21.7	16.7	307
9.0 " . . .									5	43.2	40.8	258									5	26.0	21.3	308

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

April 1956

Station	COCHIN												DUM DUM											
	0130				0730				1430				0130				0830*				1430			
in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
ace . . .	30	2.4	1.2	040	30	2.0	1.4	055	30	9.0	8.0	280	30	5.9	4.8	195	29	8.9	7.1	202	30	7.5	6.2	199
a. g. . .	21	5.1	1.2	327	30	4.5	2.5	053	29	7.2	6.6	279	30	15.7	14.2	205	29	14.5	11.7	208	30	12.1	9.9	207
a. m. s. l. . .	21	5.7	2.8	295	30	5.1	2.7	317	29	8.4	7.4	279	30	18.1	16.4	210	29	14.0	11.2	213	30	12.6	10.2	207
„ . . .	21	6.8	2.1	297	30	6.7	5.0	312	29	7.1	6.2	291	30	18.9	16.0	223	29	14.5	11.5	229	30	11.5	8.7	224
„ . . .	20	7.1	4.2	289	30	6.8	5.2	306	29	6.5	4.9	301	28	15.5	12.8	228	29	13.9	9.9	263	30	10.7	7.8	233
„ . . .	17	4.5	1.3	068	28	6.8	3.1	341	27	8.0	3.3	026	29	15.9	8.7	265	29	11.1	7.7	260	30	10.2	7.3	275
„ . . .	12	7.7	6.7	088	21	9.7	6.5	055	26	11.7	8.7	056	25	12.4	11.7	310	29	10.6	8.5	287	30	12.1	10.5	295
„ . . .	5	15.0	12.9	044	18	16.2	15.6	064	22	16.8	14.3	065	18	15.7	14.3	310	29	15.2	14.1	290	30	19.0	18.3	300
„ . . .					12	8.8	8.1	079	18	9.6	8.0	066					29	20.8	19.0	296	27	22.7	21.3	297
„ . . .					7	6.9	4.7	068	13	8.9	7.2	061					29	21.4	18.9	295	24	24.4	22.1	295
„ . . .					3	8.0	5.9	157	12	6.4	3.7	065					29	22.9	19.7	286	22	25.2	23.1	284
„ . . .					3	8.0	5.4	247	9	7.3	2.4	188					28	28.7	21.8	278	14	29.2	24.8	273
„ . . .					1	27.0	27.0	270	4	17.0	16.8	200					26	36.2	25.9	263	8	31.3	28.1	260

Station	DUM DUM				GADAG								GAUHATI											
	2030*				0130				0730				1430				0130				0830*			
in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
ace . . .	30	8.5	6.1	175	30	9.2	5.6	239	30	8.0	4.3	233	30	6.6	2.3	086	28	3.7	3.0	050	30	4.0	3.5	069
a. g. . .	30	16.4	13.9	185	29	15.7	8.1	260	30	13.1	6.5	268	30	7.5	4.3	056	28	7.4	5.9	071	30	5.9	4.5	072
a. m. s. l. . .	30	16.9	13.9	193													28	7.0	5.9	075	30	6.0	4.5	073
„ . . .	30	15.8	12.6	202													28	6.4	3.2	084	30	6.5	2.6	057
„ . . .	29	12.7	9.8	223	29	16.5	6.5	292	30	14.3	5.7	344	30	8.2	4.6	053	27	7.7	3.1	236	30	7.5	1.8	276
„ . . .	30	13.2	9.9	259	29	13.5	5.6	045	29	14.1	7.5	027	30	8.9	5.3	057	24	13.0	12.0	250	30	14.1	11.1	247
„ . . .	29	14.6	12.3	287	28	9.6	6.4	083	29	11.9	6.5	057	28	8.4	5.5	046	17	16.6	13.5	260	30	18.6	16.4	250
„ . . .	30	21.2	19.0	299	28	11.1	8.8	085	29	12.6	9.1	077	25	10.2	7.1	059	11	20.4	19.2	260	30	24.3	22.9	265
„ . . .	30	23.5	20.7	295	12	12.8	11.0	056	28	13.4	10.3	076	15	15.2	12.9	059					30	29.3	28.4	271
„ . . .	30	23.3	20.0	294	4	14.3	5.6	049	22	15.4	6.0	063	12	15.3	11.9	067					30	29.6	28.3	274
„ . . .	30	23.5	19.0	292	1	25.0	25.0	280	18	14.4	3.1	326	6	18.8	17.4	054					28	30.1	28.3	274
„ . . .	29	28.7	22.4	280	1	30.0	30.0	220	12	23.8	12.7	275	3	27.7	26.7	071					28	35.5	33.2	268
„ . . .	27	36.5	31.0	267					3	22.3	10.2	199	1	28.0	28.0	090					28	50.3	45.9	267

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9·0 Km. above mean sea level

April 1956

Station	GAUHATI								GAYA												GOPALPUR			
	1430				2030*				0130				0730				1430				0130			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	30	3·6	2·2	015	30	3·9	2·5	098	30	3·0	0·5	159	30	4·0	1·5	170	30	10·6	9·2	306	30	9·9	9·0	210
0·15 a. g. . .	30	6·0	4·2	012	30	5·7	3·7	112	26	13·0	3·9	320	25	11·5	8·3	228	26	12·9	11·1	297	26	20·7	19·5	210
0·3 a. m. s. l. .	30	6·1	4·2	008	30	5·9	3·7	118	26	13·8	5·5	330	25	11·4	8·5	239	26	13·2	11·5	297	26	18·9	17·5	212
0·6 ,, . . .	30	5·3	2·7	350	30	6·8	2·6	152	26	16·4	9·1	328	25	13·8	8·7	271	26	14·3	13·2	300	25	16·0	14·4	215
0·9 ,, . . .	30	7·4	4·4	266	30	8·1	4·7	231	24	16·3	10·1	321	25	14·8	10·3	291	26	14·6	13·4	297	25	13·1	11·3	214
1·5 ,, . . .	29	15·6	14·5	236	30	14·8	13·7	249	26	17·3	14·9	304	25	16·0	14·1	304	26	14·3	13·6	293	23	8·8	5·3	223
2·1 ,, . . .	27	20·0	19·6	245	30	20·3	19·2	255	21	20·8	19·8	294	23	19·0	18·0	305	24	14·7	13·6	292	16	7·6	2·5	319
3·0 ,, . . .	24	24·2	23·9	262	29	25·7	24·9	264	10	21·0	20·0	283	20	22·6	21·5	295	22	18·8	17·6	285	13	11·1	8·3	004
4·5 ,, . . .	19	31·4	30·6	273	28	31·2	28·9	273					8	30·0	27·9	304	18	25·4	21·8	287	4	10·0	7·4	311
5·4 ,, . . .	14	29·0	26·4	274	28	34·1	32·8	273					5	26·0	23·0	316	16	29·7	26·8	290	1	9·0	9·0	255
6·0 ,, . . .	10	28·0	26·1	270	28	35·6	34·6	272					4	30·7	27·6	313	13	31·6	28·5	291	1	12·0	12·0	215
7·2 ,, . . .	3	23·9	22·7	274	27	38·4	34·8	271					2	27·5	23·9	294	3	30·0	28·0	261				
9·0 ,, . . .	1	27·0	27·0	350	25	49·2	44·7	269					1	36·0	36·0	315	1	56·0	56·0	275				

Station	GOPALPUR								GORAKHPUR								GWALIOR							
	0730				1430				0730				1430				0130				0730			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	30	8·9	8·0	212	30	14·5	13·6	182	30	3·9	1·0	301	30	4·7	3·8	270	30	2·7	1·7	299	30	3·1	2·3	288
0·15 a. g. . .	29	17·9	17·0	209	30	23·7	22·7	190	30	13·4	2·9	351	30	9·5	7·8	274	30	11·6	6·8	320	30	10·8	7·7	299
0·3 a. m. s. l. .	29	16·0	15·0	217	30	18·7	17·2	186	30	15·4	3·1	347	30	10·2	8·3	273	30	8·9	5·2	302	30	8·6	6·4	293
0·6 ,, . . .	29	11·8	9·5	223	30	10·0	8·4	180	30	14·7	6·1	280	30	11·3	9·5	275	30	13·5	9·1	324	30	14·8	10·5	327
0·9 ,, . . .	29	11·9	8·7	235	30	6·3	1·9	198	30	14·6	9·5	288	30	11·6	9·4	280	30	12·9	10·0	318	30	13·6	10·3	325
1·5 ,, . . .	28	9·7	4·1	259	30	6·7	2·5	345	30	14·6	13·1	299	30	13·0	11·5	281	29	12·7	10·8	300	30	13·7	11·2	311
2·1 ,, . . .	28	8·4	3·0	355	30	8·0	4·4	352	28	17·4	16·3	296	30	16·7	15·6	287	28	13·7	11·5	286	30	15·3	13·3	295
3·0 ,, . . .	22	12·5	8·9	015	30	11·3	8·4	348	19	19·7	18·7	299	29	21·7	18·7	293	25	17·6	15·2	278	26	18·7	16·2	285
4·5 ,, . . .	12	12·5	10·4	008	30	13·0	9·3	349	3	27·7	27·2	332	27	30·9	29·6	293	2	13·5	12·9	010	16	17·7	12·9	294
5·4 ,, . . .	10	13·6	5·8	028	29	16·1	9·1	330	3	27·3	25·9	325	22	31·5	29·5	293					13	18·5	12·3	301
6·0 ,, . . .	9	17·0	4·3	350	28	19·2	9·0	324	2	27·0	26·0	328	17	30·6	27·9	293					10	20·2	16·3	297
7·2 ,, . . .	4	19·5	18·7	208	16	18·9	7·3	284					8	31·0	27·9	293					4	12·0	11·5	262
9·0 ,, . . .	2	26·0	25·6	221	7	28·6	20·9	240					6	33·0	31·1	265								

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9·0 Km. above mean sea level

April 1956

Station	GWALIOR				IMPHAL				JABALPUR																			
	1430				0730				1430				0130				0730				1430							
in I.S.T.																												
in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
at sea	30	4·6	3·5	309	30	1·7	0·6	154	30	8·1	7·1	231	30	0·8	0·5	209	30	1·7	0·7	217	30	4·8	3·4	312				
a. l.	30	9·3	7·8	301	29	3·3	1·0	149	30	10·0	9·6	250	30	11·3	2·9	019	30	9·4	1·7	275	30	7·7	5·8	295				
1. m. s. l.	30	8·5	7·1	302																								
„	30	10·8	9·4	299									30	11·6	4·3	010	29	12·0	2·1	346	30	7·5	5·9	296				
„	30	10·3	8·8	297	29	3·2	1·1	136	30	9·2	8·8	247	30	14·3	8·0	351	29	14·8	6·5	350	30	9·6	7·3	309				
„	29	11·2	9·7	290	29	9·1	7·2	260	30	13·5	12·9	260	30	11·4	8·4	325	30	12·7	8·2	338	30	8·9	7·1	310				
„	29	12·6	10·8	285	29	15·8	15·0	270	30	16·1	15·2	262	30	12·4	9·8	305	30	12·9	10·4	307	30	10·1	8·5	302				
„	29	17·7	15·6	276	28	21·9	20·9	275	29	21·1	19·5	270	28	14·9	12·7	289	29	13·6	11·0	292	30	13·1	10·9	293				
„	29	22·7	19·8	281	12	32·6	29·2	286	16	25·7	25·3	281	11	20·3	15·1	272	24	19·3	13·4	283	28	21·2	15·8	284				
„	28	24·6	22·2	280	2	52·0	47·4	292	11	29·2	28·6	277	1	28·0	28·0	255	16	20·4	11·8	265	26	22·2	17·6	287				
„	28	27·2	24·7	278	1	59·0	59·0	320	11	31·9	31·4	272					12	20·8	12·3	258	25	22·8	16·5	286				
„	26	33·5	29·7	273					5	30·6	29·7	260					6	16·1	9·3	273	19	28·1	21·5	271				
„	21	42·0	38·2	271													1	8·0	8·0	290	13	33·1	27·0	261				
Station	JAGDALPUR				JAGDALPUR				JAIPUR				JAMSHEDPUR															
in I.S.T.	0130				0730				1430				0730				1430				0730							
in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
at sea	30	3·0	1·8	204	30	2·4	1·7	214	30	3·3	1·6	265	30	4·0	2·8	335	30	8·7	6·6	286	30	2·2	0·9	217				
a. l.	30	11·0	8·4	211	30	8·3	6·1	218	30	7·7	2·6	265	30	12·2	6·2	318	30	12·7	9·8	286	30	6·8	3·8	241				
1. m. s. l.																					30	7·1	4·2	237				
„	30	6·2	4·0	206	30	5·0	3·3	212	30	5·9	2·6	275	30	13·9	8·1	312	30	13·7	10·7	287	30	9·5	5·7	244				
„	30	11·6	9·2	218	30	11·1	7·4	245	30	7·2	2·9	281	29	13·8	10·4	305	30	12·6	10·5	288	30	8·7	4·2	270				
„	30	9·5	3·4	267	30	11·0	5·0	301	30	7·4	3·3	309	30	15·1	12·7	296	30	12·6	10·2	295	30	10·4	6·4	302				
„	30	8·6	4·3	354	30	10·1	6·6	359	28	6·4	3·4	332	28	15·4	13·2	292	29	13·3	10·0	289	28	11·8	9·5	303				
„	28	10·3	6·8	004	30	10·6	7·2	011	28	7·0	4·7	004	23	17·3	14·7	291	26	16·2	12·8	283	27	14·6	13·9	291				
„	10	10·0	5·0	014	30	11·7	6·7	015	23	11·7	4·4	002	8	16·0	13·1	287	23	24·3	12·0	266	15	23·4	20·0	293				
„	4	14·7	2·2	226	26	12·1	6·0	343	19	15·9	5·4	357	7	19·7	17·0	286	18	24·2	21·5	277	7	19·0	17·4	295				
„	4	14·3	6·7	202	24	13·8	7·2	316	17	17·5	1·6	303	3	26·0	22·3	309	15	26·6	24·8	271	3	19·7	17·3	340				
„	3	20·7	8·5	199	11	20·3	7·9	256	12	20·3	5·1	229					6	23·6	18·1	276	2	18·0	17·7	360				
„					4	26·2	16·5	225	6	23·7	19·8	255					1	31·0	31·0	220	2	24·0	22·1	335				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9·0 Km. above mean sea level

April 1956

Station	JAMSHEDPUR				JHARSUGUDA								JODHPUR															
	1430				0130				0730				1430				0130				0830*							
Time in I. S. T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	30	3·7	1·9	321	30	5·1	2·9	137	30	3·6	1·9	097	30	3·6	1·9	305	30	5·6	2·4	313	18	5·8	3·3	240				
0·15 a. g. . .	30	5·9	3·2	336	30	13·3	4·3	158	30	8·3	3·8	123	30	6·3	4·0	301	30	15·2	6·8	273	18	5·8	4·1	300				
0·3 a. m. s. l. . .	30	5·8	3·0	328	30	10·8	4·2	142	30	7·5	3·9	114	30	6·3	4·0	300	30	12·3	4·9	277	18	7·0	3·9	240				
0·6 ,, . . .	30	5·5	3·1	303	30	14·0	3·0	193	30	9·9	1·8	098	30	6·6	4·4	300	30	17·6	9·7	271	18	9·0	5·8	230				
0·9 ,, . . .	30	6·1	4·3	300	30	14·1	3·0	228	30	10·6	1·9	089	30	6·0	3·6	301	29	17·3	10·7	264	18	11·0	8·4	245				
1·5 ,, . . .	30	9·1	7·2	290	30	11·3	5·3	290	30	10·7	2·9	024	30	6·4	3·2	305	24	13·3	9·8	251	18	13·6	11·7	250				
2·1 ,, . . .	30	12·3	10·6	289	29	9·8	7·6	304	30	10·6	5·4	332	30	8·1	6·0	315	21	11·3	8·1	247	18	14·6	11·9	260				
3·0 ,, . . .	30	16·9	15·9	296	18	10·3	8·6	321	29	13·5	11·8	305	29	10·5	9·0	313	18	10·3	7·5	278	17	12·6	8·4	260				
4·5 ,, . . .	22	21·6	19·4	302	2	14·0	11·5	355	12	14·7	12·1	304	21	19·5	17·0	314	4	14·5	12·7	272	17	17·8	14·0	260				
5·4 ,, . . .	16	22·1	17·9	292					6	19·5	16·8	298	16	20·6	15·1	306	1	8·0	8·0	120	17	20·7	18·1	250				
6·0 ,, . . .	14	21·9	19·1	284					5	20·4	15·0	289	12	20·7	14·6	282	1	3·0	3·0	115	16	24·1	20·9	250				
7·2 ,, . . .	5	29·0	22·5	278									7	32·1	29·0	262					16	46·9	25·6	265				
9·0 ,, . . .	1	50·0	50·0	265									3	40·6	40·0	243					13	41·8	33·3	275				

Station	JODHPUR								MADRAS																			
	1430				2030*				0130				0830*				1430				2030*							
Time in I. S. T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	30	7·2	4·6	270	20	5·5	4·9	240	30	3·5	3·1	172	28	7·5	6·4	197	30	9·8	7·8	146	30	9·5	8·5	145				
0·15 a. g. . .	30	8·3	5·4	264	18	8·0	6·4	240	29	11·1	10·5	174	28	10·9	9·5	195	30	12·0	10·0	147	30	11·1	10·2	144				
0·3 a. m. s. l. . .	30	8·3	5·5	267	18	7·6	5·8	240	29	12·6	11·7	179	28	11·2	9·7	195	30	12·1	9·5	168	30	11·3	10·0	145				
0·6 ,, . . .	30	9·4	6·8	256	18	9·6	8·6	240	29	11·6	10·2	179	28	11·9	9·4	192	30	9·0	4·8	156	30	9·8	7·5	131				
0·9 ,, . . .	30	9·2	6·5	251	18	11·7	8·6	245	28	8·4	5·5	182	28	12·5	9·0	199	30	7·7	2·7	229	30	9·1	4·6	103				
1·5 ,, . . .	29	8·8	6·2	260	18	13·3	9·6	250	26	8·9	4·8	094	28	10·0	6·0	112	30	11·2	3·8	060	30	11·4	6·7	067				
2·1 ,, . . .	27	9·9	6·7	261	18	13·3	10·2	260	25	13·3	8·6	072	28	15·9	12·7	073	30	15·9	10·8	065	30	15·6	12·1	069				
3·0 ,, . . .	25	13·5	7·1	259	19	14·4	10·6	275	18	14·6	12·0	056	28	21·3	18·8	060	28	19·1	17·8	054	30	19·5	15·7	061				
4·5 ,, . . .	23	18·9	16·9	267	18	19·3	14·7	265	2	10·5	10·5	155	28	19·7	16·6	055	26	15·9	14·1	062	30	14·6	9·9	062				
5·4 ,, . . .	20	23·6	21·0	287	18	22·8	18·6	265					28	17·7	13·6	077	25	13·3	8·7	074	30	14·9	7·2	070				
6·0 ,, . . .	19	25·9	21·9	276	16	25·9	19·0	265					28	17·9	11·5	083	23	12·4	5·7	071	29	15·6	6·2	079				
7·2 ,, . . .	14	30·4	24·8	271	16	33·4	27·2	260					27	17·0	7·5	110	22	14·5	1·4	012	29	16·7	4·5	074				
9·0 ,, . . .	7	28·8	20·5	286	11	39·8	34·4	260					21	20·9	8·7	180	14	14·2	6·1	245	20	18·5	6·3	204				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

April 1956

Station	MANGALORE												MASULIPATAM															
	0130				0730				1430				0130				0730				1430							
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	5.5	3.1	337	30	4.4	1.8	085	30	10.7	9.7	286	30	4.8	3.8	175	30	4.0	2.4	190	30	9.6	8.1	156				
5 a. g.	29	7.3	5.5	319	29	5.7	2.2	038	29	12.5	11.6	284	30	13.8	11.8	179	29	10.1	8.7	194	29	9.7	8.6	168				
a. m. s. l.	29	7.9	6.8	317	29	5.5	3.9	315	29	12.5	11.8	286	30	15.0	12.6	179	29	11.8	10.3	194	29	10.1	8.7	180				
„	29	8.5	7.3	316	29	6.2	5.0	304	29	9.0	7.5	300	30	12.9	9.7	170	29	12.0	10.4	195	29	8.9	6.0	205				
„	28	7.7	6.2	310	29	7.0	4.7	311	29	7.2	4.2	341	29	9.0	5.5	161	29	10.4	7.8	188	28	6.7	3.4	219				
„	24	9.2	5.5	318	29	10.0	6.2	360	27	8.9	6.1	151	27	8.3	3.7	078	25	8.7	3.2	130	28	7.7	2.8	045				
„	22	11.0	4.3	040	27	12.2	8.1	052	25	12.4	10.5	061	27	10.2	6.8	061	20	10.3	7.5	057	27	11.0	7.1	052				
„	16	16.0	14.8	073	25	16.0	14.6	070	25	17.7	16.7	075	24	13.0	10.2	045	16	14.0	11.6	052	27	14.1	11.5	057				
„	4	12.7	11.7	092	22	13.5	10.5	084	22	12.8	8.7	071	3	10.0	7.3	009	15	13.8	9.2	062	25	12.9	11.4	057				
„	1	11.0	11.0	100	20	11.1	4.7	083	21	10.6	4.2	070					12	9.9	2.9	076	24	11.3	3.8	040				
„					18	10.9	1.4	338	21	11.2	3.0	076					11	9.0	1.5	163	23	13.1	2.5	320				
„					12	16.6	8.8	293	16	19.8	4.2	342					3	18.0	15.2	230	15	13.3	6.3	272				
„					9	26.7	16.6	228	13	22.1	4.4	220					1	43.0	43.0	240	5	17.0	15.6	259				

Station	MINICOY												MOHANBARI															
	0130				0730				1430				0130				0730				1430							
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	5.6	5.0	295	30	5.0	4.3	312	30	6.6	5.8	306	30	2.0	1.4	039	30	3.3	2.6	046	30	2.1	1.7	054				
5 a. g.	30	10.5	8.4	295	29	9.4	7.3	319	30	11.1	8.7	300	23	7.6	4.7	058	26	9.8	8.5	047	28	5.9	4.8	057				
a. m. s. l.	30	10.5	8.4	295	29	2.5	7.7	312	30	11.2	8.7	304	23	7.6	4.8	051	26	10.6	9.2	046	28	6.1	4.9	055				
„	30	10.2	8.1	297	29	9.4	7.4	310	30	10.5	8.1	308	23	7.0	4.4	044	25	9.4	8.0	057	28	6.2	4.3	068				
„	30	9.6	6.3	306	29	9.2	6.4	316	30	9.9	6.6	316	23	6.2	4.1	071	24	8.5	6.7	065	28	6.2	2.7	096				
„	29	10.6	4.4	025	28	9.5	5.1	036	28	10.8	6.2	030	23	5.5	4.1	173	23	5.8	1.1	134	27	8.6	2.8	214				
„	21	15.5	7.7	055	27	14.6	11.4	060	27	14.7	11.9	055	20	9.8	7.1	228	20	7.9	6.0	231	26	14.4	13.7	225				
„	19	17.0	10.8	059	24	17.9	15.5	065	20	19.9	18.7	070	12	14.5	13.1	247	17	11.9	9.9	247	23	15.8	14.7	224				
„	11	10.4	6.9	065	18	11.4	10.2	076	12	9.3	7.5	075	1	13.0	13.0	265	10	9.3	7.4	260	10	16.9	14.7	225				
„	8	6.1	2.5	028	15	10.3	6.8	076	9	8.4	4.6	095					6	10.3	7.2	314	8	25.5	24.6	254				
„	8	6.6	2.6	300	13	12.3	5.6	079	9	8.9	5.1	093					5	12.8	9.0	295	8	27.1	26.7	261				
„	6	13.2	8.4	218	8	9.9	3.2	254	15	14.6	3.8	230					4	15.0	13.6	315	4	24.5	23.8	263				
„	1	16.0	16.0	180	6	15.7	12.1	216	2	28.0	27.5	206					2	17.5	16.9	269	1	34.0	34.0	335				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

April 1956

Station	MUSSOORIE								NAGPUR															
	0730				1430				0130				0830*				1430				2030*			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	3.1	1.8	019	30	6.4	6.2	216	30	6.1	3.9	319	27	7.8	3.4	001	30	5.7	3.0	330	26	4.5	2.4	336
0.15 a. g.	28	9.1	4.8	009	26	8.4	8.0	211	30	13.8	7.0	338	27	9.1	4.5	013	30	6.8	4.0	316	26	5.6	3.2	335
0.3 a. m. s. l.																								
0.6 "									30	15.4	8.1	341	27	10.2	5.3	015	30	6.5	3.3	316	26	6.7	3.6	332
0.9 "									30	16.0	8.3	342	27	12.7	6.7	019	30	6.3	3.1	316	26	9.0	5.0	328
1.5 "									30	11.5	5.9	343	27	13.3	7.1	008	30	7.3	3.0	305	26	9.5	5.6	328
2.1 "	28	7.8	4.0	006	26	8.6	8.2	211	29	8.9	3.8	336	27	11.9	4.7	337	30	9.2	3.3	310	26	9.6	5.6	328
3.0 "	28	10.4	4.9	296	26	8.8	4.7	232	28	8.8	2.5	283	27	11.6	2.1	294	27	10.4	7.0	316	26	9.3	6.0	317
4.5 "	28	15.6	11.7	283	24	14.5	7.6	301	4	11.3	7.9	055	27	13.5	4.4	275	22	13.6	8.0	304	25	13.3	7.5	287
5.4 "	22	19.0	16.4	286	23	18.8	14.9	285					27	16.0	6.8	270	17	16.4	10.2	327	25	15.5	7.9	280
6.0 "	20	20.4	17.7	283	21	22.6	18.3	285					27	18.2	8.6	265	17	18.7	12.3	307	25	18.1	9.3	272
7.2 "	11	23.5	21.5	273	17	29.9	28.6	287					25	25.1	15.6	253	11	21.5	15.5	291	24	24.7	15.0	270
9.0 "	3	31.7	30.4	272	11	38.4	36.0	277					23	36.4	28.3	247	8	31.4	28.4	287	21	32.9	25.2	254

Station	NEW DELHI								POONA															
	0130				0830*				1430				2030*				0130				0730			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	4.5	2.9	285	29	5.6	4.1	292	30	10.9	8.9	298	30	5.3	3.9	230	30	3.0	2.5	239	30	1.6	1.3	244
0.15 a. g.	30	14.6	10.6	337	29	7.2	5.6	291	30	11.7	9.3	303	30	7.3	5.5	310	30	9.1	7.0	293	30	5.8	3.6	278
0.3 a. m. s. l.	30	12.0	7.7	334	29	6.7	5.2	291	30	12.4	9.7	304	30	6.5	5.2	309								
0.6 "	30	15.5	11.7	329	29	9.7	7.6	294	30	12.2	10.2	298	30	10.3	8.2	309	30	4.7	3.6	253	30	3.2	2.6	244
0.9 "	30	15.1	11.5	316	29	12.4	9.1	295	30	12.5	10.5	297	30	13.7	10.9	306	30	12.0	9.4	312	30	9.5	6.9	336
1.5 "	29	15.4	10.8	301	29	14.5	11.5	291	30	13.1	10.9	292	30	14.5	12.6	295	30	16.2	11.0	358	30	15.6	12.2	018
2.1 "	28	16.2	14.1	290	29	16.9	14.3	287	30	14.5	12.4	293	30	14.9	13.0	285	29	13.1	8.7	022	30	11.0	7.1	035
3.0 "	25	20.0	16.8	281	29	16.4	13.3	285	30	18.3	15.1	288	30	17.6	14.5	279	28	11.2	4.3	068	27	10.1	4.3	097
4.5 "	1	54.0	54.0	195	29	21.7	18.2	270	29	25.7	22.3	273	30	21.8	18.2	276	7	11.9	8.9	135	22	10.0	5.0	167
5.4 "					29	25.2	22.6	268	28	28.0	24.6	276	30	24.6	21.5	273	3	7.7	4.6	201	22	11.7	1.5	269
6.0 "					29	27.7	24.7	271	28	30.4	26.4	276	30	26.0	23.1	271	2	6.0	4.0	246	22	14.0	6.3	288
7.2 "					29	32.2	30.0	267	27	36.0	33.7	276	30	29.0	27.0	270					9	19.8	13.0	270
9.0 "					27	44.3	40.8	265	25	48.0	44.0	269	28	38.3	36.1	264					4	23.7	20.0	241

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

April 1956

Station	POONA								PORT BLAIR												RAIPUR			
	1430				2030*				0130				0730				1430				0130			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Acc . . .	30	2.9	1.4	331	22	7.7	6.7	295	30	3.3	1.7	254	30	2.7	0.6	189	30	4.3	1.4	242	30	3.9	1.5	221
a. g. . .	30	7.3	2.1	309	22	13.0	11.5	300	28	8.4	4.8	268	29	6.8	2.2	250	29	8.3	2.1	214	30	14.1	2.9	280
a. m. s. l . .									28	8.6	4.6	270	29	7.2	2.1	249	29	8.7	2.4	210				
„ . .	30	5.0	1.7	325	22	9.0	7.9	300	28	7.4	3.2	254	29	7.7	2.7	234	29	7.8	1.9	214	30	14.9	3.4	308
„ . .	30	8.0	3.2	324	22	15.3	13.7	306	28	6.2	2.2	233	29	7.4	2.5	215	25	7.1	1.9	193	30	14.0	4.9	325
„ . .	30	6.8	2.8	345	22	16.0	14.1	327	26	5.8	2.0	224	29	7.7	3.1	175	20	6.7	0.5	132	30	11.0	6.2	333
„ . .	30	7.0	2.3	007	22	12.5	8.4	345	21	5.5	1.3	140	27	7.8	4.2	131	15	8.1	3.7	104	29	9.4	5.8	318
„ . .	27	6.6	0.9	071	20	12.1	2.7	064	15	8.3	5.0	077	23	9.2	6.1	097	11	8.3	3.7	081	28	10.9	7.3	309
„ . .	22	9.2	2.5	054	19	12.2	7.3	106					19	8.6	5.5	088	5	12.2	2.5	096	2	11.5	10.8	355
„ . .	19	11.3	3.6	026	15	11.3	5.3	120					16	9.7	8.0	074	3	13.3	12.4	061	1	23.0	23.0	350
„ . .	18	17.1	4.9	351	11	11.0	5.2	088					14	10.0	8.5	081	2	13.5	13.4	074				
„ . .	13	20.8	11.4	320	2	15.5	13.3	290					10	10.3	7.8	060								
„ . .	8	26.9	18.8	265									1	3.0	3.0	185								

Station	RAIPUR								SANTACRUZ															
	0730				1430				0130				0830*				1430				2030*			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Acc . . .	30	3.5	0.8	220	30	2.8	1.5	321	30	3.2	2.3	034	30	4.8	1.8	260	30	10.7	10.0	304	30	7.3	5.6	320
a. g. . .	30	12.3	2.9	300	30	7.8	3.5	332	30	10.8	6.8	325	28	10.5	4.1	360	30	13.2	12.1	307	29	14.3	11.5	325
a. m. s. l . .									30	12.5	8.5	331	28	11.5	5.4	002	30	12.2	10.9	319	29	14.3	12.3	325
„ . .	30	14.3	4.3	340	30	8.7	4.0	329	30	14.4	10.5	346	28	12.7	8.3	005	30	10.2	8.6	346	29	14.5	13.5	335
„ . .	30	14.4	5.0	355	30	8.4	4.8	330	28	15.7	12.9	357	28	14.3	11.3	010	30	10.0	8.4	359	29	15.0	13.6	345
„ . .	30	12.3	6.9	348	30	8.4	4.2	328	28	15.6	14.0	005	28	15.3	12.5	010	30	11.1	6.6	010	29	13.0	11.5	355
„ . .	30	10.2	5.9	336	30	8.7	5.0	325	28	13.9	9.2	004	28	13.4	7.8	015	30	10.4	4.3	030	29	11.5	7.0	355
„ . .	30	10.6	6.6	315	30	9.9	6.0	316	26	11.2	1.7	162	28	11.9	2.4	160	30	11.1	2.5	139	29	11.2	3.0	110
„ . .	21	14.3	7.0	310	29	14.5	8.6	316	2	20.5	20.5	165	28	13.8	6.8	180	29	13.5	4.1	166	29	13.6	8.3	150
„ . .	13	13.7	4.5	295	28	18.0	9.5	311					27	14.1	2.2	220	28	11.7	1.1	236	26	12.8	2.7	180
„ . .	11	16.1	4.6	260	28	20.1	9.1	302					27	15.2	2.4	295	27	12.3	3.1	306	26	13.5	2.1	230
„ . .	1	19.0	19.0	020	23	28.1	14.0	278					27	21.5	8.9	280	19	21.3	11.2	292	26	19.1	7.7	270
„ . .					9	29.5	25.0	255					25	30.1	18.1	260	13	29.8	19.2	278	23	29.9	22.3	260

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9·0 Km. above mean sea level

April 1956

Station	TEZPUR												TIRUCHIRAPALLI															
	0130				0730				1430				0130				0730				1430							
Time in I.S.T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	30	2·9	2·7	069	30	3·2	2·9	070	30	3·7	2·5	093	30	5·5	3·2	242	30	4·6	3·3	254	30	5·0	0·4	348				
0·15 a. g. . .	28	12·5	12·0	081	28	10·7	9·4	079	29	7·0	4·2	091	28	10·6	5·7	220	30	9·4	5·1	261	30	6·7	1·1	324				
0·3 a. m. s. l. . .	28	12·7	12·0	086	28	13·3	12·1	083	29	7·1	4·1	095	28	11·4	6·1	216	30	10·8	6·6	260	30	6·8	1·0	339				
0·6 „ . . .	27	9·3	8·1	101	28	11·8	9·8	089	29	5·7	1·7	115	28	13·1	7·7	215	30	12·0	7·5	272	30	6·9	0·3	050				
0·9 „ . . .	27	7·6	4·8	140	27	8·8	5·7	101	29	7·4	3·3	221	26	10·6	6·5	212	30	9·8	4·4	270	30	6·8	1·2	107				
1·5 „ . . .	25	9·8	7·7	241	24	8·5	4·9	230	29	14·7	13·2	246	26	8·5	1·0	120	30	7·3	1·6	075	30	7·5	2·9	076				
2·1 „ . . .	20	15·1	14·2	260	22	13·8	11·6	249	27	21·5	20·9	247	23	12·3	9·6	060	30	13·7	10·9	063	28	11·7	9·5	054				
3·0 „ . . .	13	18·3	17·3	259	18	16·0	13·7	261	24	24·3	22·6	250	18	20·5	16·7	057	29	21·9	18·7	052	28	19·9	18·1	052				
4·5 „ . . .					6	18·7	17·9	270	19	27·5	25·9	271	5	18·6	17·9	068	22	15·4	14·1	058	20	11·7	9·5	062				
5·4 „ . . .					1	5·0	5·0	275	16	29·0	27·5	272	3	9·3	8·1	027	17	10·1	5·6	079	17	9·9	6·3	039				
6·0 „ . . .					1	2·0	2·0	315	14	30·6	28·0	273	1	8·0	8·0	315	15	12·2	3·4	091	16	8·9	3·3	353				
7·2 „ . . .					1	24·0	24·0	350	11	33·5	31·0	277	1	8·0	8·0	320	11	10·5	7·2	238	13	11·4	4·8	293				
9·0 „ . . .					1	37·0	37·0	360	5	33·6	28·6	315					5	11·2	4·7	250	11	13·7	4·5	243				

Station	TRIVANDRUM												UDAIPUR															
	0130				0730				1430				0130				0730				1430							
Time in I.S.T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	30	3·0	1·6	348	30	2·7	2·0	351	30	8·1	6·4	286	30	1·4	1·2	263	30	0·3	0·2	252	30	3·7	2·5	258				
0·15 a. g. . .	30	10·1	6·3	323	30	8·6	6·4	349	29	14·5	12·1	272	30	8·4	5·8	291	30	6·2	4·5	303	30	8·9	5·5	252				
0·3 a. m. s. l. . .	30	11·2	7·7	318	30	9·6	7·1	331	29	15·0	12·4	272																
0·6 „ . . .	30	14·5	10·7	302	30	12·5	9·5	320	29	14·6	11·0	278																
0·9 „ . . .	28	14·3	11·6	302	30	12·0	9·5	318	29	11·9	7·7	294	30	11·2	7·6	301	30	9·4	5·5	305	30	8·9	5·6	261				
1·5 „ . . .	26	12·2	7·0	331	29	9·9	5·5	345	27	11·3	6·7	019	30	14·3	10·4	292	30	12·7	8·1	284	30	9·4	6·3	268				
2·1 „ . . .	20	13·3	8·3	048	27	11·8	8·3	048	26	14·8	11·6	055	30	12·2	8·1	273	30	11·9	7·2	261	30	10·4	6·6	271				
3·0 „ . . .	17	22·1	21·6	065	24	18·6	17·8	061	22	17·5	14·2	063	28	14·4	8·6	243	30	16·0	11·7	251	30	12·8	9·3	256				
4·5 „ . . .	6	16·7	16·0	074	16	15·0	13·4	066	6	16·8	14·9	049	9	11·2	4·7	266	25	17·3	12·6	258	29	18·8	15·3	257				
5·4 „ . . .	2	12·5	12·3	070	8	8·0	7·3	082	4	12·7	8·7	010	1	20·0	20·0	235	19	16·0	10·1	281	26	21·4	18·1	263				
6·0 „ . . .					4	5·7	5·2	075	3	11·7	8·3	008					14	15·6	10·2	277	25	22·8	18·0	200				
7·2 „ . . .					1	5·0	5·0	220	2	8·0	2·6	274					8	17·0	6·5	295	22	28·1	21·7	203				
9·0 „ . . .									1	6·0	6·0	315					4	26·0	9·0	357	17	41·4	34·8	265				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

April 1956

Station	VENGURLA												VERAVAL															
	0130				0730				1430				0130				0730				1430							
in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
e . . .	30	2.0	1.4	015	30	1.0	0.9	359	30	7.9	6.6	268	30	11.6	10.5	317	30	9.2	8.1	332	30	14.2	13.8	267				
g. . .	30	8.5	5.6	340	29	5.8	3.8	025	30	11.5	9.5	277	30	19.1	17.7	325	30	18.3	15.6	339	30	13.8	12.5	275				
n.s.l. . .	30	10.6	7.2	342	29	9.2	6.0	007	30	11.9	9.5	283	30	20.4	18.8	324	30	19.6	16.8	337	30	13.4	10.8	292				
„ . .	30	11.9	8.8	346	29	11.6	7.3	007	30	9.1	6.0	295	30	19.0	17.0	329	30	17.4	14.8	335	30	11.4	9.3	321				
„ . .	28	14.1	10.7	345	29	14.5	9.0	009	28	7.7	3.7	359	28	14.2	10.3	335	30	14.6	11.6	332	30	10.2	8.0	329				
„ . .	25	13.4	9.9	347	29	14.5	10.7	017	28	10.4	7.4	039	27	10.0	5.3	304	29	11.0	6.1	300	30	10.5	7.7	319				
„ . .	22	10.6	7.3	030	28	11.5	8.0	040	27	12.0	9.0	048	23	13.3	6.8	281	29	13.5	7.7	271	30	13.1	8.7	278				
„ . .	21	13.9	9.9	084	27	11.0	8.4	075	27	11.7	9.1	072	17	13.2	7.7	232	27	13.7	9.2	224	30	13.4	9.3	237				
„ . .	9	10.6	8.4	127	23	11.0	7.7	107	27	11.6	9.0	090	3	12.0	7.0	159	17	12.6	2.0	144	29	15.2	9.1	226				
„ . .	1	10.0	10.0	030	20	12.0	2.5	094	26	15.0	6.3	069	1	14.0	14.0	185	15	15.3	1.6	287	29	15.7	7.7	258				
„ . .	1	19.0	19.0	005	19	14.1	1.1	035	26	16.4	3.6	056					13	16.2	6.4	269	29	17.9	9.5	265				
„ . .					18	22.6	11.3	277	23	21.7	3.5	321					7	22.4	9.6	280	25	24.1	15.3	271				
„ . .					5	25.4	17.4	208	18	26.4	13.4	252					2	20.5	6.1	029	18	33.2	21.1	278				

Station	VISAKHAPATNAM											
	0130				0730				1430			
in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D
„ . .	30	4.4	3.5	219	30	4.5	3.6	218	30	13.9	12.5	205
g. . .	30	8.0	6.5	220	30	8.3	6.5	226	29	10.2	9.4	205
n.s.l. . .	30	9.3	7.6	223	30	10.0	8.3	229	29	9.2	7.9	211
„ . .	29	9.1	7.2	235	30	10.3	8.8	230	29	7.0	5.1	225
„ . .	23	8.2	5.3	288	30	8.7	6.1	227	29	5.8	3.6	237
„ . .	20	6.9	0.3	281	28	6.8	1.6	290	29	6.8	3.5	012
„ . .	17	6.8	3.1	016	23	8.0	4.9	030	29	9.2	6.8	030
„ . .	15	8.5	6.1	014	20	10.0	6.5	038	29	12.2	9.7	025
„ . .	5	11.2	3.2	318	15	14.9	8.9	030	29	12.1	7.9	031
„ . .					8	10.5	6.0	220	28	15.2	7.1	029
„ . .					6	10.5	8.9	207	27	18.8	5.3	005
„ . .					3	11.7	9.5	258	24	21.5	6.8	309
„ . .									17	26.4	19.4	252

TABLE V—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds above 9.0 Km. above mean sea level

April 1956

Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D
	AGARTALA					BAMRAULI					BHUJ					GAYA					JHARSUGUDA			
	1430 hrs.					0830 hrs.*					0730 hrs.					1430 hrs.					1430 hrs.			
10.5	3	39.0	28.0	295	10.5	10	53.9	49.4	260	10.5	1	38.0	38.0	260	10.5	1	71.0	71.0	285	10.5	2	40.5	40.1	235
12.0	1	24.0	24.0	360	12.0	4	37.7	35.2	250		1430 hrs.				12.0	1	64.0	64.0	225					
14.1	1	21.0	21.0	360	14.1	1	64.0	64.0	280	10.5	3	48.0	46.7	267		GOPALPUR								
	AHMEDABAD				16.2	1	59.0	59.0	280	12.0	2	58.0	56.4	271		1430 hrs.					JODHPUR			
	1430 hrs.				18.0	1	56.0	56.0	280		COCHIN				10.5	6	38.0	36.9	226		0830 hrs.*			
10.5	1	53.0	53.0	285	10.5	19	40.2	34.8	265		1430 hrs.				12.0	4	37.3	36.0	221	10.5	11	48.2	37.7	275
	AMAUSI				12.0	8	38.1	36.0	250	10.5	3	23.6	23.5	206	14.1	1	44.0	44.0	180	12.0	7	55.4	50.0	271
	1430 hrs.				14.1	3	12.7	12.1	260	12.0	1	31.0	31.0	215		GORAKHPUR								
	AMBALA					BANGALORE					DUM DUM					1430 hrs.								
10.5	3	37.0	36.6	258		0730 hrs.					0830 hrs.*					1430 hrs.				10.5	7	33.0	20.3	28
12.0	2	51.5	47.5	256	10.5	2	25.5	25.5	215	10.5	23	40.1	32.2	252	10.5	3	46.7	43.8	253	12.0	3	49.0	35.6	27
	1430 hrs.				12.0	1	24.0	24.0	230	12.0	23	39.0	32.3	243	12.0	1	23.0	23.0	280		2030 hrs.*			
	ANANTAPUR				14.1	1	24.0	24.0	185	14.1	12	43.4	34.0	242		GWALIOR				10.5	10	44.8	37.3	25
	1430 hrs.					1430 hrs.				16.2	3	44.0	27.8	250		1430 hrs.				12.0	8	49.0	40.6	24
10.5	11	48.2	44.9	261	10.5	4	23.3	15.4	195	18.0	1	53.0	53.0	260		1430 hrs.				14.1	5	37.4	25.8	25
12.0	7	62.1	55.9	262	12.0	3	23.7	14.7	196		1430 hrs.				10.5	18	53.8	47.4	260	16.2	2	47.5	45.0	25
14.1	4	58.0	49.9	255	14.1	2	13.5	2.3	103	10.5	4	27.0	24.1	250	12.0	9	44.9	34.5	251	18.0	1	45.0	45.0	30
16.2	3	49.3	40.5	278	16.2	1	11.0	11.0	310		2030 hrs.*				14.1	4	36.5	34.3	234		MADRAS			
18.0	3	46.7	32.6	313	18.0	1	7.0	7.0	205	10.5	25	39.4	34.5	257	16.2	3	26.3	25.5	249		0830 hrs.*			
	ANANTAPUR					BAREILLY				12.0	23	41.8	36.9	244		JABALPUR				10.5	18	26.0	17.4	1
	0730 hrs.					1430 hrs.				14.1	14	36.6	33.4	234		1430 hrs.				12.0	14	26.9	16.8	1
10.5	4	21.1	15.1	201	10.5	1	73.0	73.0	240	16.2	1	8.0	8.0	270	10.5	9	47.7	42.0	260	14.1	12	35.2	15.6	1
12.0	1	31.0	31.0	235		BEGUMPET					GADAG				12.0	4	36.7	35.4	275	16.2	7	23.0	15.6	1
	1430 hrs.					1430 hrs.					0730 hrs.				14.1	1	73.0	73.0	270	18.0	5	26.6	18.6	1
10.5	9	26.7	19.4	217	10.5	7	27.4	18.1	224	10.5	1	20.0	20.0	225	16.2	1	69.0	69.0	270	20.0	2	43.5	37.5	1
12.0	5	28.4	19.2	227	12.0	5	28.2	23.7	231		GAUHATI					1430 hrs.					1430 hrs.			
14.1	2	22.5	15.7	226	14.1	2	27.0	23.9	197		0830 hrs.*					0730 hrs.				10.5	13	17.1	12.6	1
	BAIRAGARH				16.2	2	26.0	21.0	159	10.5	24	64.5	59.1	265		1430 hrs.				12.0	4	26.3	19.3	1
	0730 hrs.				18.0	1	52.0	52.0	120	12.0	18	64.5	58.2	260	10.5	4	34.7	29.7	225		2030 hrs.*			
	BHAGALPUR					1430 hrs.				14.1	5	56.4	51.4	270	12.0	1	4.0	4.0	340					
10.5	1	23.0	23.0	335	16.2	2	74.5	74.5	300		2030 hrs.*					1430 hrs.				10.5	16	24.4	16.7	1
	1430 hrs.				10.5	1	47.0	47.0	335	10.5	20	62.5	56.0	263	12.0	2	19.5	12.9	167	14.1	4	34.3	24.3	1
10.5	5	34.4	26.9	297		BHUBANESHWAR				12.0	19	60.5	60.5	261	14.1	1	17.0	17.0	080	16.2	2	16.0	5.0	1
12.0	2	19.5	19.5	239		1430 hrs.				14.1	5	52.2	52.0	260	16.2	1	7.0	7.0	115	18.0	1	15.0	15.0	1
14.1	1	22.0	22.0	220	10.5	2	42.0	41.5	222															

RADIOSONDE DATA

April 1956

During the month, observations of upper air temperature, pressure and humidity were made at 13 stations in India as given in the list below. For a detailed description of the instruments used a reference may be made to the I.M.D. Scientific Notes Nos. 112 and 113 (Volume IX).

LIST OF RADIOSONDE STATIONS IN INDIA

Serial No.	Name of station	Type of instrument used	Date of starting	Hours of routine observations in GMT during the month	Remarks
1	Allahabad	Clock type	1st October, 1954	03 and 15	
2	Bombay	Clock type	7th September, 1954	03 and 15	
3	Calcutta	Clock type	13th December, 1946	03 and 15	Fan type used from 13th December, 1946 to 30th November 1947.
4	Gauhati	Clock type	22nd July, 1955	03 and 15	
5	Jodhpur	Clock type	17th April, 1946	03 and 15	
6	Madras	Fan type	29th June, 1946	03 and 15	
7	Nagpur	Fan type	1st October, 1946	03 and 15	
8	New Delhi	Clock type	3rd December, 1943	03 and 15	
9	Poona	Fan type	24th April, 1944	15	
10	Port Blair	Fan type	4th December, 1949	15	
11	Trivandrum	Fan type	1st July, 1947	15	
12	Veraval	Fan type	3rd October, 1944	15	
13	Visakhapatnam	Fan type	8th December, 1946	15	

RADIOSONDE DATA

TABLE VI.—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(A) From Ascents at 03 Hours G. M. T.

April 1936

Standard surface pressure in mb.	ALLAHABAD Surf. Pr. (995 mb.)						BOMBAY (1009 mb.)						CALCUTTA (1006 mb.)																	
	No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A															
			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point												
Surface	29	98	303.3	309	298	283.5	30	9	300.9	304	299	297.6	29	6	305.2	307	300	297.4												
1000	29	53	..	..	..	..	30	76	..	..	..	..	29	63	..	..	..	..								
900	29	991	300.9	306	294	272.1	30	1006	298.6	305	295	282.2	29	996	298.6	305	293	285.6												
850	29	1494	296.3	302	291	267.4	30	1506	296.4	302	292	278.0	29	1496	296.2	302	291	279.4												
800	28	2017	292.6	296	288	264.7	30	2032	292.6	297	289	277.7	29	2021	292.0	298	287	276.4												
700	28	3147	283.5	290	279	258.3	30	3164	283.6	288	278	274.3	29	3150	282.9	293	277	270.7												
600	27	4408	274.4	279	269	254.5	30	4427	274.3	279	268	267.2	29	4412	274.6	282	269	259.1												
500	27	5852	265.7	273	263	..	29	5871	265.6	272	259	..	28	5863	266.4	272	258	..												
400	25	7567	253.9	260	249	..	29	7575	254.9	263	249	..	28	7575	256.5	263	245	..												
300	18	9636	241.8	250	232	..	27	9670	241.7	251	234	..	26	9669	244.2	252	237	..												
250	15	10914	235.1	242	226	..	27	10942	233.9	244	226	..	20	10998	236.0	245	228	..												
200	14	12431	227.4	235	217	..	26	12442	224.3	236	215	..	17	12521	226.6	234	217	..												
175	10	13269	222.4	231	211	..	22	13273	217.4	228	209	..	12	13333	220.8	228	210	..												
150	9	14287	218.8	227	206	..	18	14239	212.1	224	207	..	8	14415	215.6	221	203	..												
125							9	15394	208.2	219	202	..																		
100							5	16723	206.0	215	198	..																		
80							5	18153	206.8	217	201	..																		
GAUHATI (1003 mb.)																			JODHPUR (984 mb.)						MADRAS (1007 mb.)					
Surface	30	49	298.2	300	296	296.0	27	218	302.0	307	297	282.5	27	15	302.6	305	300	298.0												
1000	30	78	..	..	..	..	27	73	..	..	..	..	27	81	..	..	..	..								
900	30	994	293.1	297	290	288.2	27	1004	298.6	305	292	276.4	27	1012	296.9	301	293	286.9												
850	30	1486	290.8	294	287	284.8	27	1504	295.6	302	285	273.2	27	1510	295.8	300	291	279.5												
800	30	2003	287.4	291	284	282.0	27	2027	291.9	298	284	272.7	27	2035	293.7	299	290	275.1												
700	30	3119	280.6	285	277	275.3	27	3156	284.1	289	278	264.4	27	3170	285.3	291	280	269.9												
600	30	4374	273.9	279	269	266.2	27	4421	275.0	281	267	253.4	27	4444	276.1	281	268	263.7												
500	30	5821	266.5	273	260	..	27	5868	266.3	273	263	..	27	5902	269.0	277	263	..												
400	29	7525	255.6	262	249	..	26	7571	254.3	261	243	..	26	7629	259.1	263	252	..												
300	29	9623	242.1	251	231	..	20	9632	239.9	245	229	..	21	9763	245.6	252	240	..												
250	26	10858	235.0	248	219	..	19	10902	232.4	240	226	..	18	11041	236.3	243	231	..												
200	25	12412	226.8	240	207	..	15	12401	225.6	233	220	..	14	12552	227.0	235	222	..												
175	20	13303	222.5	235	216	..	14	13269	222.0	229	209	..	12	13441	221.9	231	216	..												
150	13	14306	216.9	229	211	..	10	14273	219.2	225	213	..	10	14423	214.7	224	208	..												
125	8	15472	212.0	222	207	..	9	15391	215.0	222	207	..	7	15560	210.2	217	203	..												
100	5	16919	210.4	219	203	..							7	16758	205.0	210	197	..												
80													6	18315	201.7	207	194	..												

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(B) From Ascents at 15 Hours G. M. T.

April 1956

Standard Pressure Surface h. ft.	VISAKHAPATNAM Surf. Pr. (1001 mb.)																
	No. of Obs.	Ht. gpm.	Temperature °A														
			Mean	Max.	Min.	Dew Point											
Surface	30	48	301.9	303	300	297.2											
1000	30	53	..	..	..	..							
900	30	987	299.4	306	295	287.1											
850	30	1490	297.6	303	292	281.5											
800	30	2018	293.8	299	289	278.2											
700	30	3153	284.7	289	277	273.7											
600	30	4418	275.1	281	265	264.1											
500	30	5867	267.0	272	256	..											
400	30	7582	257.1	266	244	..											
300	30	9691	242.5	253	231	..											
250	24	10963	233.2	239	225	..											
200	23	12458	222.8	232	215	..											
175	21	13304	216.5	229	210	..											
150	21	14281	209.7	224	200	..											
125	12	15383	204.9	220	198	..											
100	11	16743	199.1	217	193	..											
80	5	18129	196.2	199	193	..											

NOTE.—Number of observations refer to those of dynamic height.

Means are not worked out for temperature and dew point for the 1000 mb. surface and for dew point for standard pressure surfaces with temperature less than 273° A.

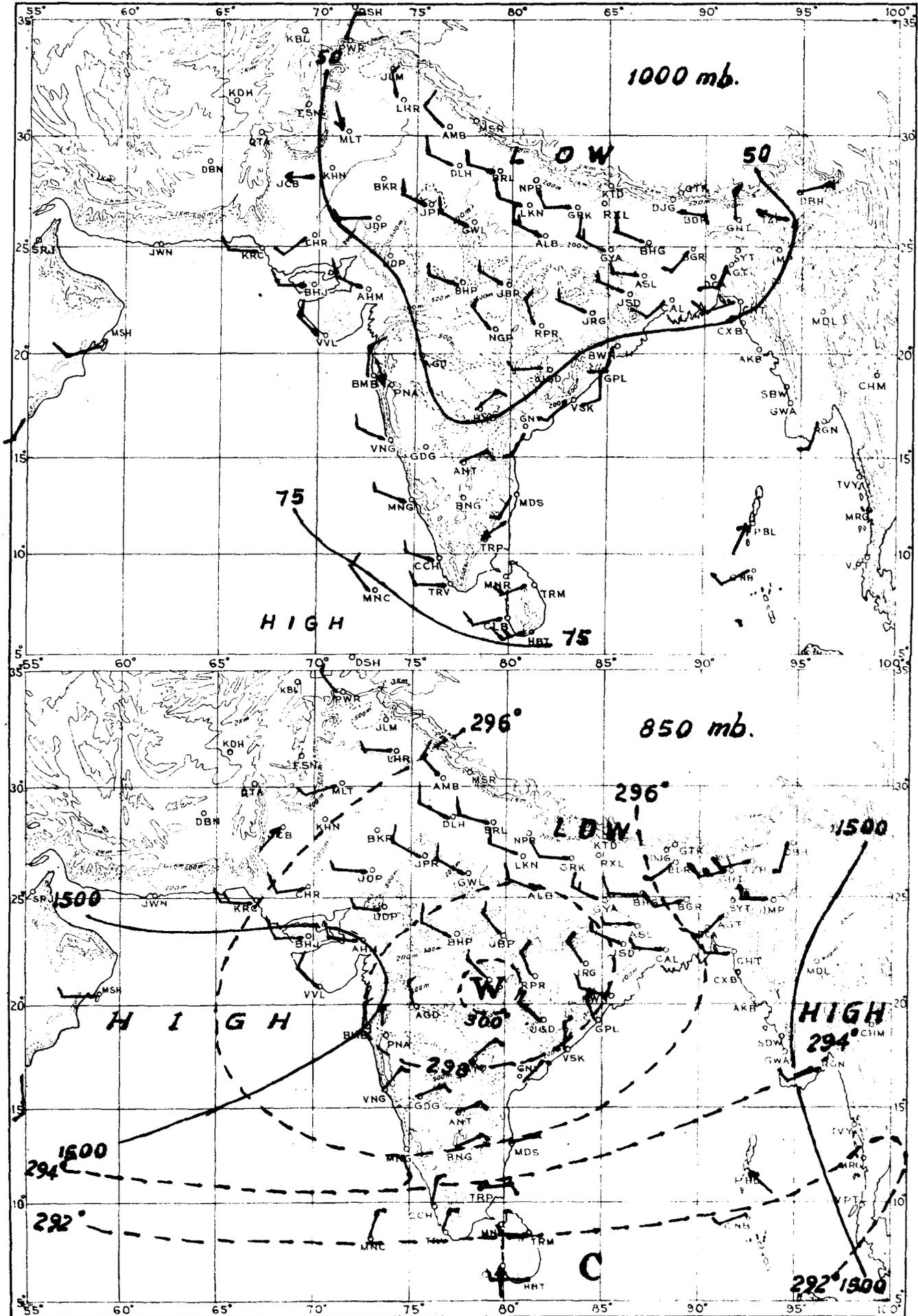
Means are not worked out for less than five observations at standard pressure surfaces.

MONTHLY MEAN CONSTANT PRESSURE CHARTS

I. Met. D.

APRIL 1956

Plate I



RESULTANT WIND — 5 Knots, — 10 Knots, — 50 Knots.

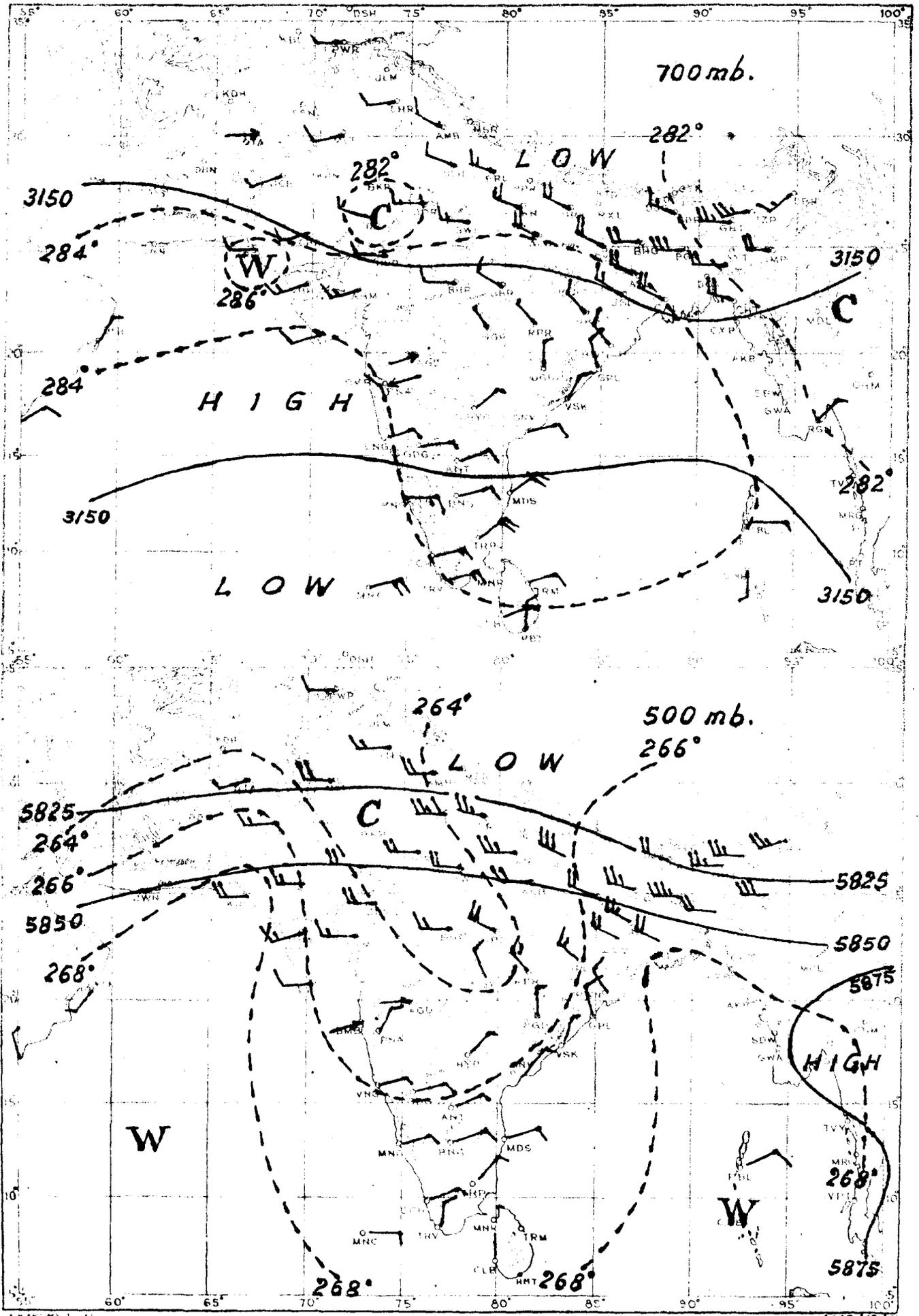
----- Isotherms in degrees absolute. — Contours in geopotential metres.

MONTHLY MEAN CONSTANT PRESSURE CHARTS

I Met.D.

APRIL 1956

Plate II



RESULTANT WIND — 5 Knots, — 10 Knots, — 50 Knots.

Isotherms in degrees absolute.

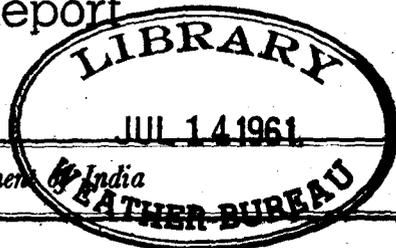
Contours in geopotential metres.

0060/318/12/56

INDIA WEATHER REVIEW, 1956

Monthly Weather Report

May



Published by authority of the Government of India

Chief features—

- (1) A prolonged heat wave in the plains of northwest India, in west Uttar Pradesh and the central parts of the country during the first fortnight of the month.
- (2) Advance of the monsoon over the West coast and into Assam, West Bengal and Orissa during the latter half of the month, about 10 to 15 days ahead of the normal date, and
- (3) Formation of a severe cyclonic storm in the north Bay of Bengal towards the end of the month.

Last month's depression—

The depression which lay near Gadag on the last day of April, moved westwards and emerging into the east Arabian Sea, lay on the morning of 1st May with its centre about 100 miles to the west of Vengurla. Thereafter, it gradually recurved to the northeast and lay on the 2nd morning with its centre about 150 miles to the southwest of Bombay. It weakened rapidly by the evening of the same day and became unimportant on the 3rd. Under the influence of the depression, there was a spell of widespread rain with a few heavy falls in and near the south Konkan between the 1st and 3rd, Harnai recording 6" on the 3rd.

During the first ten days of the month, there was a slow but steady incursion of maritime air into Assam and Sub-Himalayan West Bengal and as a consequence, there was widespread thunderstorm activity over these areas on most days during this period with locally very heavy falls on some days. Some noteworthy amounts of rainfall were—Cherrapunji 11" on 2nd, 3" on 3rd and 15" on 5th and Jalpaiguri 5" on 4th.

According to press reports, the heavy rains brought about a rise in the levels of rivers in Assam and Sub-Himalayan West Bengal with the consequent flooding of some villages and plantations.

Heat wave—

On the other hand, northwest India, Uttar Pradesh and the central parts of the country came under a prolonged regime of hot continental air during the first two weeks. As a consequence, a moderate to severe heat wave prevailed over the Punjab (I), Rajasthan and west Uttar Pradesh between the 1st and 12th of the month. The maximum temperatures recorded over this area during the period ranged from 113°F. to 117°F., being 9° to 13° F. above normal. On the 10th afternoon, Hissar Bikaner and Ganganagar recorded 117° F. each, Ganganagar again recording the same temperature the next day. On some days during this period, the heat wave extended also to Madhya Pradesh, Orissa, and Chota Nagpur where the maximum temperatures became 8° to 11° F. above normal. Though the intensity of the heat wave did not reach the highest on record, its duration was unusually prolonged, compared to such waves in other years. Some deaths due to heat stroke were reported from the Punjab (I), west Uttar Pradesh, Madhya Pradesh, Chota Nagpur and Orissa. A small region in the Peninsula comprising south coastal Andhradesa and the southeastern portion of Hyderabad State also experienced a moderate to severe heat wave between the 5th and 13th. Bhadrachalam recorded a maximum temperature of 116° F. on the 11th afternoon while Gannavaram recorded the same temperature on the 8th and 9th.

Advance of monsoon—

In association with a well marked trough of low pressure extending from Uttar Pradesh to the west central Bay of Bengal, which developed on the 10th and persisted till the 15th, a temporary advance of the monsoon took place into the south Andaman Sea on the 11th. There was also a pronounced incursion of moist air from the Bay into northeast India and east Uttar Pradesh leading to a good spell of thunderstorm activity over these parts between the 11th and 16th.

A trough of low pressure appeared off the Malabar-south Kanara coast on the 14th and persisted there for about a fortnight with varying intensity. Under its influence, the Arabian Sea branch of the monsoon advanced into Maldives-Comorin area on the 18th, into Travancore-Cochin and Malabar on the 21st, into south Kanara on the 22nd, into north Kanara on 26th, into south Konkan on the 27th and into the north Konkan on 29th. The advance of the monsoon into these parts of the country was about 10 days ahead of the normal date.

Severe cyclonic storm—

The Bay branch of the monsoon revived in the southeast Bay by the 25th in association with a trough of low pressure which developed in the west central Bay and thereafter advanced steadily northwards. Conditions became unsettled in the north Bay of Bengal on the evening of 28th and a shallow depression formed over the northwest angle of the Bay of Bengal on the 29th morning with its centre near Saugor Island. Remaining practically stationary and gaining steadily in intensity, it became a cyclonic storm by the night of 30th. Intensifying further into a severe storm, it was centred at 0830 hrs. IST on 31st about 60 miles to the south of Calcutta. Moving slowly northwestwards, it hit the coast near Contai early during the night of 31st and then slightly weakened. According to press reports, the storm caused considerable damage to property and agriculture in West Bengal, where, in all, about a million people were affected. It is said that in Midnapore district more than 10,000 persons were rendered homeless. Over 30,000 acres of paddy fields in the coastal areas of West Bengal were reported to have been inundated by saline water due to breaches in the embankments.

In association with the storm, the monsoon extended into West Bengal and Orissa on the 29th, again about 10 days ahead of the normal date. Gangetic West Bengal experienced very heavy falls, Midnapore recording 6" on the 29th.

Extension of the Arabian Sea branch of the monsoon—

The Arabian Sea branch of the monsoon also advanced as a feeble current into Deccan (Desh), Hyderabad, south Gujarat and south Madhya Bharat by the 31st.

Summary of the month's rainfall, temperatures, humidity and cloud—

The rainfall during the month was in large excess in east Uttar Pradesh, Madhya Bharat, Madhya Pradesh, Gujarat, the Konkan, Deccan (Desh), Hyderabad, Rayalaseema and Malabar-south Kanara, in moderate excess in Assam, West Bengal, Orissa and Chota Nagpur and in slight excess in Uttar Pradesh. It was normal in the Bay Islands and Bihar, in moderate defect in Vindhya Pradesh and in large defect over the rest of the country outside west Rajasthan where there was no rain.

The mean maximum temperature was above normal in northwest India, west Uttar Pradesh, Vindhya Pradesh and Deccan (Desh) and below normal in Hyderabad, coastal Andhra Pradesh, Rayalaseema, Malabar-south Kanara, Mysore and Travancore-Cochin. It was normal elsewhere.

The mean minimum temperature was above normal in northeast India outside Orissa, Chota Nagpur, Bihar, Uttar Pradesh, northwest India, Madhya Bharat and Vindhya Pradesh. It was below normal in Malabar-south Kanara and normal elsewhere in the country.

The mean relative humidity in the morning was above normal in Bihar, east Uttar Pradesh, Madhya Pradesh, the Konkan, Deccan (Desh), Hyderabad, Rayalaseema and Malabar-south Kanara. It was below normal in Jammu-Kashmir and Tamilnad and normal elsewhere in the country.

The mean cloud amount in the morning was above normal in the Bay Islands, northeast India outside Assam, east Uttar Pradesh, Madhya Bharat, Madhya Pradesh, Gujarat, Saurashtra-Kutch, the Konkan, Deccan (Desh), Hyderabad, coastal Andhradesa and Rayalaseema. It was below normal in the Punjab (I), Jammu-Kashmir and east Rajasthan and normal in the remaining parts of the country.

Table I contains the divisional and sub-divisional means of rainfall, temperature, humidity and cloud amount for the 13 chief political divisions and the 28 sub-divisions. The stations whose observations are used for preparing these means are given in the subsequent tables.

The highest maximum temperature given for any station in the accompanying tables is that recorded within the 24 hours ending at 0830 hrs. IST of the date noted in the succeeding column. Similarly the heaviest fall in 24 hours for any station denotes the amount recorded during the 24 hours ending at 0830 hrs. IST of the date given in the succeeding column.

POONA 5;

The 8th October, 1957

B. N. Sreenivasaiiah,

for Director General of Observatories.

Errata to Monthly Weather Report for May 1956

Table No.	Page No.	Station	Hour	Column	For	Read
II	204	Tezpur (P.B.O.)	-	2	6.3	86.3
		Midnapore	-	2	97.	97.8
	205	Darbhanga	-	12	-0.62	-1.62
		Fatchpur	-	12	-0.03	+0.03
		Patiala	-	8	9	69
	206	Gondia	-	6	8 2	84.2
	208	Calingapatam	-	14	1,25	12,25
		Arogyavaram	-	13	Not clear	0.93
		Kallakurichi	-	9	Blank	1
		Mangalore	-	9	Blank	2
		Mangalore	-	10	7.8	7.80
		Kozhikode	-	9	1,25	1
		Kozhikode	-	10	5.	5.00
		Palghat	-	9	27	1,25,27
	209	Cherrapunji	-	3	+0.8	-0.8
		Darjiling (Raj Bhawan)	-	12	+5.10	-5.10
		Simla	-	7	+5.	+5.2
	210	Bishungarh	-	1	Bishnugar	Bishungarh
		Baramul	-	22	12	0
		Baramul	-	23	0	12
					(a)	
III	212	Saugor Island	0830	13	5.2	5.2
	213	Purulia	0830	15	5	3.5
	214	Ranchi	1730	9	Not clear	72.3
		Daltonganj	1730	15	3.5	8.5
		Forbesganj	0830	26	Blank	0
	216	Ludhiana	1730	2	1730	**1730
		Ferozepur	0830	2	**0830	0830
	217	Bikaner	1730	4	954.2	994.2
		Jhalawar	0830	1	Jhala-	Jhalawar
	218	Bhopal (Bairagarh)	1730	9	47.7	46.7
		Gondia	1730	5	Not clear	961.7
		Raipur	0830	22	Not clear	1
		Raipur	1130	20	Not clear	1
		Raipur	1130	24	Not clear	3
	219	Deesa	1730	18	Not clear	31
		Ahmedabad	0230	2	Not clear	0230
		Ahmedabad	0530	5	999.5	995.5
					()	(e)
	220	Bhuj (Acrodrome)	1730	13	0.8	0.8
		Rajkot (Acrodrome)	1730	5	Not clear	984.7
		Mahuva	1730	8	Blank	82.9
	223	Pamban	1730	26	Blank	0
	224	Kozhikode	1130	7	Not clear	83.8
	225	Kodaikanal	1130	10	1.1	13.1
	226	Hazaribagh	0830	11	51	52
	228	Gaya	-	Station	Not clear	Gaya
		Port Blair	-	"	Not clear	Port Blair

Table	Page No.	Station	Ht. in km.	Hour	Column	For	Read
IV	236	Jodhpur	2.1	2030*	v	12.	12.2
	238	Mohanbari	Surface	0730	V	3.4	3.5
	240	Tiruchirapalli	0.3	0130	v	2.19	21.9
		Tezpur	4.5	0130	n V v D	Blank	1 6.0 6.0 135
		Tezpur	5.4	0130	n V v D	1 6.0 6.0 135	Blank
241	Visakhapatnam	0.6	0130	V	13.3	13.8	
V	242	Gauhati	16.2	0830	V	16.1	16.0
		Gauhati	16.2	0830	v	16.1	16.0
	Gorakhpur	-	-	Heading	Gorakhpur	Gorakhpur	
	Gorakhpur	14.1	0730	D	252	255	
VI	245	Jodhpur	-	100	Max.	13	213

IV/-

TABLE I—DIVISIONAL AND SUB-DIVISIONAL MEANS—MAY, 1956.

	Rainfall (inches).	Percentage of normal.	Mean maximum temperature °F.	Mean minimum temperature °F.	Relative humidity. %		Cloud.			Rainfall (inches).	Percentage of normal.	Mean maximum temperature °F.	Mean minimum temperature °F.	Relative humidity. %		Cloud.	
					0830 hrs. I.S.T.	1730 hrs. I.S.T.	0830 hrs. I.S.T.	1730 hrs. I.S.T.						0830 hrs. I.S.T.	1730 hrs. I.S.T.	0830 hrs. I.S.T.	1730 hrs. I.S.T.
1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
Division									Division—contd.								
am (Including anipur & Tri-ra).	15.79	133	87.1	74.5	84	79	6.1	5.4	8. Madhya Bharat & Vindhya Pradesh.	1.17	249	107.2	81.2	36	20	1.6	2.8
	+3.96	..	0	+2.5	+3	..	+0.8	..		+0.70	..	+1.4	+2.3	+3	..	+0.4	..
st Bengal	8.17	145	94.9	79.3	77	69	5.1	4.9	9. Madhya Pradesh	2.42	303	104.9	81.3	45	28	4.1	4.7
	+2.55	..	-1.2	+2.2	+4	..	+1.3	..		+1.62	..	-0.8	+1.8	+10	..	+2.2	..
issa	4.17	132	96.6	80.9	76	71	5.3	5.7	10. Bombay (Including Saurashtra & Kutch).	4.02	372	95.3	76.8	74	54	4.0	3.4
	+1.00	..	-1.4	+1.0	+3	..	+1.9	..		+2.94	..	-2.2	0	+7	..	+1.5	..
ar	2.36	117	100.6	80.2	63	48	4.1	4.5	11. Hyderabad	2.82	297	100.3	78.8	58	35	4.5	5.4
	+0.34	..	0	+2.8	+8	..	+1.6	..		+1.87	..	-3.6	-0.3	+9	..	+2.1	..
ar Pradesh	1.58	226	105.3	81.4	49	34	1.6	1.7	12. Madras (Including Travancore-Cochin).	4.81	151	95.7	79.6	67	58	4.6	5.0
	+0.88	..	+1.0	+3.6	+9	..	+0.4	..		+1.63	..	-2.0	-0.4	-2	..	+0.8	..
ujab (I) (Including PEPSU & Jh).	0.10	20	109.8	80.3	40	21	0.7	0.9	13. Mysore	1.60	41	87.6	69.8	77	55	4.4	4.9
	-0.41	..	+4.9	+3.4	+6	..	-0.5	..		-2.29	..	-4.7	-0.8	+5	..	+0.4	..
asthan	0.02	4	108.9	82.2	37	14	0.6	1.2	Mean of India	3.20	163	100.8	79.6	57	41	3.4	3.7
	-0.45	..	+3.0	+2.5	-2	..	-0.2	..		+1.24	..	-0.4	+1.5	+5	..	+1.0	..
Sub-Division									Sub-Division—contd.								
y Islands	14.73	97	85.9	75.8	83	86	6.8	7.3	15. Madhya Pradesh, East.	2.44	197	103.1	81.0	47	32	4.8	5.6
	-0.40	..	0.8	+0.8	+5	..	+1.2	..		+1.20	..	-1.3	+1.7	+9	..	+2.4	..
am (Including anipur & Tri-ra).	15.79	133	87.1	74.5	84	79	6.1	5.4	16. Madhya Pradesh, West.	2.42	448	106.0	81.6	43	25	3.6	4.2
	+3.96	..	0	+2.5	+3	..	+0.8	..		+1.88	..	-0.5	+1.9	+11	..	+2.1	..
st Bengal	8.17	145	94.9	79.3	77	69	5.1	4.9	17. Gujarat	1.49	403	102.3	79.7	66	36	2.8	1.9
	+2.55	..	-1.2	+2.2	+4	..	+1.3	..		+1.12	..	-0.6	+1.1	+1	..	+1.0	..
issa	4.17	132	96.6	80.9	76	71	5.3	5.7	18. Saurashtra and Kutch.	0.08	28	99.4	78.7	75	54	3.3	1.9
	+1.00	..	-1.4	+1.0	+3	..	+1.9	..		-0.21	..	+0.2	+1.2	+4	..	+1.4	..
ota Nagpur	3.07	146	103.0	80.5	53	40	4.5	6.1	19. Konkan	8.30	469	88.7	78.7	81	73	5.2	4.4
	+0.97	..	-0.1	+2.4	+5	..	+2.3	..		+6.53	..	-1.5	-0.8	+6	..	+1.1	..
har	2.05	103	99.0	79.9	68	52	3.7	3.5	20. Deccan (Desh)	3.54	290	95.1	72.6	71	49	4.4	4.9
	+0.06	..	+0.2	+3.1	+9	..	+1.1	..		+2.32	..	+5.2	-0.5	+12	..	+2.2	..
ar Pradesh, st.	2.33	307	104.4	82.1	56	38	1.9	1.7	21. Hyderabad, North	3.21	417	100.4	78.4	58	37	4.5	5.3
	+1.57	..	-0.3	+3.5	+12	..	+0.7	..		+2.44	..	-3.7	-0.1	+14	..	+2.4	..
tar Pradesh, st.	0.74	116	106.4	80.6	42	28	1.3	1.7	22. Hyderabad, South	2.42	216	100.1	79.1	57	33	4.5	5.5
	+0.10	..	+2.4	+3.7	+5	..	0	..		+1.30	..	-3.5	-0.5	+6	..	+1.9	..
ujab (I) (Including PEPSU and Jh).	0.10	20	109.8	80.3	40	21	0.7	0.9	23. Coastal Andhradesa	2.73	148	98.2	81.7	68	60	5.3	5.1
	-0.41	..	+4.9	+3.4	+6	..	-0.5	..		+0.89	..	-2.1	-0.2	+1	..	+1.3	..
mmu & Kash-ir.	1.16	44	86.8	59.8	42	33	1.5	2.3	24. Rayalaseema	3.51	228	100.3	80.6	62	37	3.9	4.4
	-1.49	..	+6.6	+4.4	-8	..	-1.2	..		+1.97	..	-4.7	-1.5	+7	..	+0.7	..
asthan, West	0	0	110.8	81.7	41	13	0.6	1.1	25. Tamilnad	0.86	40	97.2	79.5	59	52	3.8	4.9
	-0.39	..	+4.0	+2.7	-1	..	-0.1	..		-1.30	..	-0.9	+0.6	-9	..	+0.4	..
asthan, East (including Ajmer).	0.04	7	107.3	82.6	34	15	0.5	1.2	26. Malabar and South Kanara.	22.79	294	86.9	76.1	83	75	5.5	4.9
	-0.51	..	+2.2	+2.4	-4	..	-0.3	..		+15.05	..	-3.6	-2.5	+6	..	+0.6	..
adhya Bharat	1.68	336	106.4	80.8	39	19	1.5	2.7	27. Mysore	1.60	41	87.6	69.8	77	55	4.4	4.9
	+1.18	..	+0.8	+2.2	+3	..	+0.6	..		-2.29	..	-4.7	-0.8	+5	..	+0.4	..
indhya Pradesh	0.32	74	108.6	81.8	32	21	1.9	3.1	28. Travancore-Cochin	14.76	144	86.1	75.9	85	77	6.1	5.5
	-0.11	..	+2.3	+2.4	+2	..	+0.1	..		+4.53	..	-2.5	-1.9	+4	..	+0.9	..

Note.—The entries in the second line for each division and sub-division indicate departures from normal.

TABLE II—SUMMARY OF OBSERVATIONS OF TEMPERATURE, RAINFALL AND WEATHER—MAY, 1956.

Division and station	Air temperature in °F							Rainfall in inches					No. of rainy days (0.10" or more)		Wind Speed, miles per hour			Weather phenomena—No. of days with											
	Mean maximum	Departure from normal	Highest	Date	Mean minimum	Departure from normal	Lowest	Date	Total fall during 0830-1730 hours	Total fall in 24 hours	Departure from normal	Heaviest fall in 24 hours	Date	Total in the month	Departure from normal	Mean between 0830-1730 hours	Mean 24 hours	Departure from normal	Precipitation (or more)	Snow or sleet	Hail	Thunder heard	Fog	Dust-storm	Ground frost	Gale	Squall	Line squall	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
HYDROMETEOROLOGICAL OBSERVATORIES—contd.																													
Damodar Catchment—contd.																													
Hazaribagh . . .	97.9	...	108	5	76.7	...	68	13	1.49	2.13	...	1.01	28	4	...	7.1	5.1	...	6	0	0	7	1	0	0	0	0	0	0
Ramgarh . . .	103.6	...	115	5	78.8	...	71	4	2.11	2.70	...	0.93	30	4	...	4.5	2.9	...	7	0	0	8	0	0	0	0	1	0	
Panchet Hills . . .	101.8	...	111	4	81.1	...	69	22	1.56	2.94	...	1.32	22	5	...	8.5	8.3	...	6	0	0	0	0	0	0	0	0	0	
Asansol . . .	...	...	...	...	...	...	...	...	...	5.79	...	2.95	15	6	...	...	...	...	10	...	...	...	...	...	...	...	...	...
Dhanwar . . .	...	...	...	...	...	...	...	...	...	1.20	...	0.40	15	4	...	...	...	...	5	...	...	...	...	...	...	...	...	...
Dumri . . .	...	...	...	...	...	...	...	...	...	1.48	...	0.60	29	4	...	...	...	...	5	...	...	...	...	...	...	...	...	...
Bishnugarh . . .	...	...	...	...	...	...	...	...	...	4.57	...	1.77	10	4	...	...	...	...	6	...	...	...	...	...	...	...	...	...
Palgai (Girdih) . . .	...	...	...	...	...	...	...	...	...	5.38	...	3.49	29	5	...	...	...	...	6	...	...	...	...	...	...	...	...	...
Chandwa . . .	...	...	...	...	...	...	...	...	...	3.52	...	1.46	29	4	...	...	...	...	6	...	...	...	...	...	...	...	...	...
Mahanadi Catchment																													
Baramul . . .	102.5	...	114	5	79.8	...	75	14,25,29	2.97	4.34	...	1.42	25	7	...	2.8	2.2	...	9	0	12	0	0	0	0	0	0	0	
Hirakud . . .	106.2	...	116	6	83.8	...	75	29	0.46	1.54	...	0.95	29	2	...	5.2	4.1	...	6	0	3	0	1	0	0	0	1	0	
Barkachhar* . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sonepur . . .	105.5	...	116	8	84.0	...	74	29	...	1.39	...	0.70	29	4	...	...	4.7	...	4	...	...	...	...	...	...	...	...	...
Ginabhar . . .	103.8	...	114	5	75.1	...	69	11	...	3.46	...	1.35	11	5	...	...	...	...	5	...	...	...	...	...	...	...	...	...
Narabada Catchment																													
Funasa . . .	107.8	...	113	4 days	81.6	...	71	31	0.53	2.87	...	2.23	31	4	...	8.7	7.9	...	5	0	0	2	0	0	0	0	0	0	
Bagra Tawa . . .	108.3	...	113	11,24	83.1	...	74	31	1.08	1.42	...	1.14	31	3	...	7.3	5.6	...	4	0	0	6	0	3	0	0	0	0	
Thikri . . .	106.5	...	116	24	82.3	...	73	26,30,31	...	0.70	...	0.58	30	2	...	...	...	...	2	...	...	...	...	...	...	...	...	...
Tapti Catchment																													
Nandurbar . . .	104.8	...	112	1	80.7	...	71	31	...	6.24	...	3.00	31	5	...	...	...	...	5	...	...	...	...	...	...	...	...	...
Sabarmati Catchment																													
Jhadol . . .	101.6	...	113	24	75.6	...	68	7,9	...	0.80	...	0.70	28	2	...	...	...	...	2	...	...	...	...	...	...	...	...	...
Dharoi . . .	106.1	...	113	1	78.0	...	73	14	0	0	...	0	...	0	...	...	...	...	0	...	...	...	...	...	...	...	...	...

*Observatory closed on 9th May, 1956.

TABLE III—SUMMARY OF OBSERVATIONS AT FIXED HOURS—MAY, 1956.

Table with columns: Division and station, Hour of observation I.S.T., Height of barometer station above mean sea level in feet, Mean pressure in millibars, Mean temperature in °C, Cloud amount (Okta), Wind Speed (m.p.h.), No. of observations, and Wind direction. Rows include stations like Assam—contd., Gauhati, Goalpara, Dhubri, Tura, Agarrala, Silchar, Haflong, Imphal, West Bengal Dum Dum, Calcutta, Barrackpore, Saugor Island, Sandheads, Midnapore, Coates, Burdwan, Krishnagar, Anantol, and Suri.

(a) Mean of 30 days.

TABLE III— SUMMARY OF OBSERVATIONS AT FIXED HOURS—MAY, 1956.

Table with columns for Division and station, Hour of observation I.S.T., Height of barometer cistern, Mean pressure in millibars, Mean temperature in °F., Vapour pressure in mbs., Relative humidity %, Departure from normal, Cloud amount (Okta), Mean wind speed, Wind Speed (m.p.h.), and No. of observations (Wind direction).

TABLE III—SUMMARY OF OBSERVATIONS AT FIXED HOURS—MAY, 1956.

Division and station.	Hour of observation I.S.T.	Height of barometer cylinder above mean sea level in feet.	Mean pressure in millibars.			Mean temperature in °F.			Vapour pressure in mbs.	Relative humidity %.	Departure from normal.	Cloud amount (Okta).		Mean wind speed, miles per hour.	Wind Speed (m.p.h.)			No. of observations.									
			At mean sea or nearest g. p. km. level.	At station level.	Departure from normal.	Dry bulb.	Wet bulb.	Dew point.				Mean amount.	Departure from normal.		39 or more.	13 to 38.	1 to 12.	N	NE	E	SE	S	SW	W	NW	Calm.	Variable.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Hill Stations excluding Kashmir—contd. Ootacamund	0830	3778	800.2	777.6	-1.8	60.2	55.2	52.1	13.1	73	+9	3.8	-0.1	6.1	0	5	21	5	0	0	0	1	10	9	1	5	0
	1730	"	798.6	776.1	...	61.4	57.7	54.5	14.9	79	...	5.0	...	4.0	0	1	22	3	1	0	0	1	7	11	0	8	0
Coonoor	0830	5730	799.6	824.6	...	69.5	59.6	53.2	13.9	57	0	3.2	-1.0	3.0	0	0	21	1	0	2	5	1	7	1	4	10	0
Sikkim Lachen	0830	...	...	...	...	53.0	51.1	49.0	12.0	88	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tibet Yatung (Chumbi)	0830	...	...	...	...	53.3	51.9	50.6	12.6	93	+10	0.4	-3.2	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lhasa (R)	0830	12090	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ceylon— Colombo	0830	24	1008.9	1008.1	-1.0	82.0	78.0	76.3	30.9	83	-2	6.5	+0.6	7.1	0	1	27	0	0	0	2	1	18	7	0	3	0
	1730	"	1006.5	1005.6	...	82.8	77.8	75.4	30.3	79	...	6.5	...	8.1	0	0	31	0	0	0	0	1	23	7	0	0	0
Trincomalee	0830	11	1006.0	1005.6	-1.6	84.7	76.0	71.8	26.7	66	-13	5.0	+1.6	16.4	0	28	3	0	0	0	0	1	29	1	0	0	0
	1730	"	1003.1	1002.8	...	91.9	76.9	69.6	24.8	48	...	5.1	...	14.8	0	23	8	0	0	0	0	1	29	1	0	0	0
Batticaloa	0830	9	1006.5	1006.2	...	84.9	75.9	69.7	26.5	67	...	4.1	...	4.9	0	0	29	0	1	2	3	10	7	4	2	2	0
	1730	"	1003.5	1003.2	...	87.6	80.0	76.3	31.5	70	...	5.0	...	9.4	0	7	24	0	3	4	13	9	1	0	1	0	0
Hambantota	0830	50	1007.8	1006.0	-1.0	81.3	77.6	75.9	30.7	84	-2	4.6	+0.7	14.6	0	24	7	0	1	0	0	0	11	19	0	0	0
	1730	"	1005.0	1003.3	...	82.9	77.2	74.5	29.3	78	...	5.1	...	19.1	0	31	0	0	0	0	0	0	15	16	0	0	0
Mannar	0830	12	1006.8	1006.4	...	84.4	79.7	77.7	32.5	80	...	3.8	...	12.3	0	21	10	0	0	0	0	2	28	1	0	0	0
	1730	"	1004.1	1003.7	...	84.6	79.6	77.0	32.3	79	...	4.5	...	14.2	0	26	5	0	0	0	0	4	27	0	0	0	0
HYDROMETEOROLOGICAL OBSERVATORIES Damodar Catchment Bokaro	0830	784	999.7	973.6	...	88.8	77.3	71.9	26.8	59	...	4.5	...	4.1	0	1	26	1	0	4	14	2	5	1	0	4	0
	1730	"	995.3	969.5	...	95.1	74.2	60.5	19.4	39	...	5.6	...	6.6	0	2	29	4	4	3	10	0	3	1	6	0	0
Hazaribagh	0830	2019	...	...	...	86.7	72.3	64.1	21.2	51	...	3.0	...	4.6	0	0	24	0	0	4	5	4	5	3	3	7	0
	1730	"	...	...	...	91.1	70.7	57.2	17.3	39	...	4.4	...	5.3	0	0	28	3	0	8	3	1	3	2	8	3	0
Rangmah	0830	...	...	...	...	88.7	76.6	70.8	25.1	57	...	5.1	...	2.9	0	0	24	0	1	11	5	0	1	6	0	7	0
	1730	...	...	...	...	95.3	73.7	58.8	18.3	39	...	6.1	...	3.5	0	0	27	2	1	6	6	0	0	3	9	4	0
Panchet Hills	0830	...	...	...	...	89.0	78.8	74.2	29.0	63	...	...	...	4.6	0	1	30	1	3	8	9	5	4	0	1	0	0
	1730	...	...	...	...	93.8	77.7	69.6	25.1	49	...	...	...	5.5	0	2	27	3	6	11	8	0	0	0	1	2	0
Maharadi Catchment Baramul	0830	210	1001.0	993.9	...	89.5	80.2	76.2	30.1	65	...	4.3	...	2.6	0	0	27	1	9	4	2	7	3	0	1	4	0
	1730	"	997.1	990.1	...	92.0	78.1	71.5	26.4	55	...	6.4	...	1.8	0	0	23	5	1	0	2	6	1	4	4	8	0
Hirakud	0830	522	1000.2	982.8	...	90.9	77.1	70.2	25.3	53	...	...	...	5.2	0	0	31	1	1	3	1	8	11	5	1	0	0
	1730	...	995.1	978.1	...	99.8	74.8	58.3	18.3	32	...	...	...	5.3	0	0	28	1	2	5	4	4	2	6	4	3	0
Barkachhat*	0830	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	1730	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sonepur	0830	...	...	...	...	95.1	80.6	74.2	28.9	54	...	...	...	5.3	0	3	14	1	0	1	0	1	9	5	0	14	0
Ginabahr	0830	...	...	...	...	89.2	73.2	63.0	20.5	45	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Narbada Catchment Punasa	0830	...	...	...	...	88.5	73.7	65.6	21.7	48	...	(l) 4.7	...	5.9	0	0	31	0	0	0	0	1	13	12	1	0	0
	1730	...	...	...	...	102.4	75.8	59.1	18.4	30	...	(m) 4.7	...	4.6	0	1	27	0	0	1	1	1	6	14	2	3	0
Bagra Tawa	0830	...	...	...	...	91.9	72.9	61.0	19.0	39	...	2.1	...	5.5	0	0	31	0	0	0	0	4	20	6	1	0	0
	1730	...	...	...	...	103.3	73.3	52.4	14.6	22	...	3.3	...	4.3	0	1	28	5	2	1	0	3	8	9	1	2	0
Thikri	0830	...	...	...	...	87.5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tapli Catchment Nandurbar	0830	...	...	...	...	84.9	79.9	77.3	32.4	78	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sebermati Catchment Jhadol	0830	...	...	...	...	85.8	84.2	84.1	39.8	93	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dharoi	0830	...	...	...	...	82.4	72.6	66.6	23.0	62	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	1730	...	...	...	...	102.7	78.1	66.2	21.7	32	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

(l) Mean of 19 days.

*Observatory closed on 9th May, 1956.

(m) Mean of 18 days.

(R) Register not received

MONTHLY MEANS OF UPPER WINDS, MAY 1956

During the month, observations of velocity and direction of upper winds were made at 52 stations in India. Out of these, at 43 stations all the observations were taken by means of pilot balloons and at 9 stations some observations were made by means of pilot balloons while the other observations by the radiowind method. Particulars of the stations, their co-ordinates and the approximate times of the regular pilot balloon and rawin ascents at each station are given in the table below. All radiowind ascents have been indicated by means of an asterisk (*) against the scheduled hours.

Data from ascents made at the scheduled time or within two hours on either side of the scheduled times of regular observations have been used for averaging.

Data upto 9.0 km. a. m. s. l. are given under Table IV and data above 9.0 km. a. m. s. l. under Table V.

In Tables IV and V :

n—represents the number of observations,

V—represents the mean wind speed in knots irrespective of direction,

v—represents the resultant mean velocity in knots,

D—represents the direction of the resultant mean wind in degrees East of North.

Mean and resultant winds are given in this publication for the following heights :—

Surface, 0.15 km. a. g., 0.3, 0.6, 0.9, 1.5, 2.1, 3.0, 4.5, 5.4, 6.0, 7.2, 9.0, 10.5, 12.0, 14.1, 16.2, 18.0, 20.0, 23.0, 26.0, 30.0 and 35.0 km. a. m. s. l. Of these the levels 1.5, 3.0, 5.4, 7.2, 9.0, 12.0, 14.1 and 16.2 km. a. m. s. l. are considered as the best approximations to the standard pressure levels 850, 700, 500, 400, 300, 200, 150, and 100 mb. respectively.

Particulars of Pilot Balloon and Rawin Stations in India

Station	Lat. N.	Long. E.	Height of Anemometer head a. m. s. l. in metres	Date of opening	Approximate times of flight (IST)		
Agartala	23°53'	91°15'	17	28th November 1951	0130	0730	1430
Ahmedabad	23°04'	72°38'	61	19th May 1928	0130	0730	1430
Amausi	26°45'	80°53'	126	20th November 1950	0130	0730	1430
Ambala	30°23'	76°46'	282	1st April 1941	0130	0730	1430
Anantapur	14°41'	77°37'	364	12th February 1946		0730	1430
Asansol	23°41'	86°59'	126	29th May 1942	0130	0730	1430
Baghdogra	26°38'	88°19'	130	7th June 1953		0730	1430
Bairagarh	23°17'	77°21'	524	26th February 1943	0130	0730	1430
Bamrauli	25°27'	81°44'	103	28th February 1930	0130	0830*	1430 2030*
Bangalore	12°58'	77°35'	936	19th May 1915	0130	0730	1430
Barcilly	28°22'	79°24'	180	12th January 1943		0730	1430
Begumpet	17°27'	78°28'	542	1st September 1929	0130	0730	1430
Bhagalpur	25°14'	86°57'	60	19th May 1950		0730	1430
Bhubaneswar	20°15'	85°50'	45	5th December 1942	0130	0730	1430
Bhuj	23°15'	69°48'	111	14th September 1937	0130	0730	1430
Bikaner	28°00'	73°18'	228	18th October 1946	0130	0730	1430
Chikalthana	19°51'	75°24'	583	7th October 1951	0130	0730	1430
Cochin†	09°58'	76°14'	3	16th March 1942	0130	0730	1430
Darjeeling	27°03'	88°16'	2115	21st May 1956		0730	1430
Dum Dum	22°39'	88°27'	11	14th May 1921	0130	0830*	1430 2030*
Gadag	15°25'	75°38'	650	3rd May 1943	0130	0730	1430
Gauhati	26°05'	91°43'	55	12th March 1955	0130	0830*	1430 2030*
Gava	24°45'	84°57'	113	19th March 1937	0130	0730	1430
Gopalpur	19°16'	84°53'	24	15th February 1946	0130	0730	1430
Gorakhpur	26°45'	83°22'	83	5th January 1943		0730	1430
Gwalior	26°14'	78°15'	211	7th May 1938	0130	0730	1430
Imphal	24°51'	93°58'	798	8th March 1952		0730	1430
Jabalpur	23°10'	79°57'	402	30th July 1928	0130	0730	1430
Jagdapur	19°05'	82°02'	561	25th March 1948	0130	0730	1430
Jaipur	26°49'	75°48'	387	6th June 1953		0730	1430
Jamshedpur	22°49'	86°11'	144	23rd July 1942		0730	1430
Jharsuguda	21°55'	84°05'	234	1st May 1944	0130	0730	1430
Jodhpur	26°18'	73°01'	228	15th October 1934	0130	0830*	1430 2030*
Madras	13°00'	80°11'	29	8th April 1926	0130	0830*	1430 2030*
Mangalore	12°52'	74°51'	40	4th June 1928	0130	0730	1430
Masulipatnam	16°11'	81°08'	9	8th April 1942	0130	0730	1430
Minicoy	08°18'	73°00'	14	14th April 1941	0130	0730	1430
Mohanbari	27°29'	95°01'	110	1st June 1948	0130	0730	1430
Mussoorie	30°27'	78°05'	2050	3rd November 1955		0730	1430
Nagpur	21°09'	79°07'	316	23rd April 1943	0130	0830*	1430 2030*
New Delhi	28°35'	77°12'	227	20th October 1936	0130	0830*	1430 2030*
Poona	18°32'	73°51'	560	5th January 1925	0130	0730	1430 2030*
Port Blair	11°40'	92°43'	92	29th October 1945	0130	0730	1430
Raipur	21°14'	81°39'	308	15th July 1944	0130	0730	1430
Santacruz	19°05'	72°53'	12	14th May 1933	0130	0830*	1430 2030*
Tezpur	26°37'	92°47'	78	12th August 1932	0130	0730	1430
Tiruchirapalli	10°46'	78°43'	95	22nd June 1936	0130	0730	1430
Trivandrum	08°29'	76°57'	72	8th December 1928	0130	0730	1430
Udaipur	24°35'	73°42'	587	24th June 1947	0130	0730	1430
Vengurla	15°52'	73°38'	8	22nd November 1941	0130	0730	1430
Veraval	20°54'	70°22'	16	13th October 1941	0130	0730	1430
Visakhapatnam	17°43'	83°14'	9	24th September 1928	0130	0730	1430

* Radiowind ascents.

† Naval Meteorological Office.

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

May 1956

n.	AGARTALA												AHMEDABAD																			
	0130				0730				1430				0130				0730				1430											
in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D				
Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
ce . . .	31	6.5	5.3	141	31	6.4	5.9	148	31	6.6	4.7	165	31	7.6	5.6	230	31	7.1	5.7	235	31	8.1	6.3	235								
a. g. . .	31	14.3	12.1	166	27	10.9	10.0	151	27	12.3	9.4	166	31	15.2	13.0	250	31	10.7	8.5	242	31	9.7	7.7	251								
m. s. l. .	31	17.0	15.4	173	27	14.5	13.4	167	27	13.0	10.7	175	31	17.5	15.0	251	31	13.3	10.0	245	31	9.8	8.6	251								
„ . .	30	19.8	18.0	180	26	17.4	15.9	175	27	14.8	12.7	176	31	21.7	18.0	264	31	17.0	13.2	263	30	11.0	9.6	251								
„ . .	27	17.3	15.0	180	24	16.5	14.0	182	25	15.4	12.8	177	31	18.8	14.9	263	31	17.9	13.0	265	30	11.6	10.5	253								
„ . .	22	13.6	11.7	182	20	15.0	11.0	185	22	13.9	10.1	185	26	10.3	8.6	265	25	15.4	10.5	263	28	10.9	7.3	251								
„ . .	13	10.9	6.9	199	19	14.0	7.8	193	17	14.6	7.9	179	22	8.1	2.8	237	12	10.6	0.3	004	28	10.9	4.0	245								
„ . .	10	9.8	3.7	200	15	12.5	3.2	222	13	13.1	2.5	171	14	11.9	4.4	125	6	10.7	6.4	082	25	14.0	0.5	100								
„ . .					9	12.3	3.7	075	6	11.3	4.4	272					2	13.5	7.8	090	23	15.4	6.3	057								
„ . .					6	12.6	4.0	065	4	24.5	9.0	205					2	21.5	16.0	075	22	17.5	8.9	052								
„ . .					5	13.0	9.2	080	4	23.5	12.5	168					1	10.0	10.0	145	19	19.1	10.3	045								
„ . .					3	8.0	3.7	296	2	24.0	17.6	195									17	19.5	10.7	042								
„ . .									2	13.5	9.0	216									9	17.3	8.3	045								

n.	AMAUSI												AMBALA															
	0130				0730				1430				0130				0730				1430							
in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
ce. . .	31	6.0	5.1	139	31	6.8	2.3	095	31	7.7	2.8	040	31	8.7	3.5	106	31	9.3	6.9	115	31	7.0	1.3	279				
a. g. . .	31	16.9	8.7	110	31	13.4	7.6	084	30	9.0	2.5	002	30	19.7	7.6	105	31	18.4	12.9	106	31	11.7	4.0	224				
m. s. l. .	31	17.5	9.1	113	31	13.4	7.3	092	30	9.1	2.6	009	30	10.3	4.4	089	31	11.2	7.9	110	31	8.4	1.5	267				
„ . .	31	17.9	8.1	128	31	17.0	4.9	130	30	10.4	3.1	006	30	20.9	6.3	116	31	22.3	14.7	117	31	12.5	2.8	283				
„ . .	31	15.3	4.4	150	31	14.5	3.5	120	30	10.6	2.0	351	30	19.7	2.4	143	31	21.7	11.7	125	31	12.8	3.2	276				
„ . .	31	12.8	6.5	295	31	14.5	6.2	276	29	10.9	5.9	302	30	14.9	5.5	301	31	13.6	1.6	239	31	12.4	5.0	288				
„ . .	30	14.5	12.5	302	31	15.1	10.5	303	29	13.9	11.1	295	29	13.9	10.6	311	31	12.8	9.0	313	31	14.1	10.7	307				
„ . .	23	17.7	16.2	306	27	17.4	14.7	307	29	17.6	15.4	295	26	17.2	12.4	298	28	16.0	13.6	316	30	18.4	17.9	315				
„ . .	1	7.0	7.0	300	9	11.5	7.3	355	24	20.6	17.7	301	3	10.3	9.1	301	20	17.8	15.5	327	26	20.1	18.2	323				
„ . .					4	12.3	9.1	038	21	19.5	16.6	315	2	6.0	6.0	340	15	18.6	17.0	330	26	20.7	18.3	317				
„ . .					3	11.7	11.4	086	19	19.8	17.0	315	2	9.5	7.7	024	10	19.6	17.4	325	24	23.9	20.7	316				
„ . .									7	25.3	21.5	296	2	18.5	17.3	032	2	20.6	12.5	291	20	26.9	23.1	309				
„ . .									3	21.0	18.0	294									14	32.6	27.6	293				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

May 1956

Station	ANANTAPUR								ASANSOL								BAGHDOGRA							
	0730				1430				0130				0730				1430				0730			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	9.0	8.3	255	31	7.6	6.3	270	31	6.6	5.2	141	31	5.4	3.9	144	31	4.9	3.0	107	31	5.6	5.0	05
0.15 a. g.	31	14.6	13.9	255	31	11.2	8.7	271	29	13.3	10.5	159	31	10.3	6.7	149	31	9.5	5.7	108	26	10.5	9.2	09
0.3 a. m. s. l.									29	13.3	10.6	159	31	10.6	7.0	156	31	10.1	5.9	107	26	10.7	9.6	09
0.6 "	31	16.6	15.8	257	31	12.1	9.8	270	29	15.8	12.3	171	31	14.9	8.0	183	30	9.8	5.2	125	26	11.9	10.6	08
0.9 "	31	19.7	18.7	267	31	13.0	11.2	272	22	15.2	9.2	181	24	14.6	8.6	216	30	9.8	4.6	136	24	11.9	11.5	08
1.5 "	31	21.3	17.4	279	31	14.5	12.1	279	20	10.3	3.8	186	20	10.6	5.3	241	29	9.9	3.4	137	17	12.1	10.0	08
2.1 "	31	17.1	10.9	292	31	14.1	10.2	289	20	10.7	3.4	292	17	11.3	7.5	296	26	10.1	3.8	285	13	11.2	5.4	10
3.0 "	30	13.0	4.7	296	24	11.3	3.1	315	13	12.2	6.1	282	14	12.9	9.9	301	17	13.5	12.2	298	8	13.1	6.9	09
4.5 "	28	10.3	1.0	117	22	8.1	2.8	090					6	9.0	3.2	348	10	17.9	15.3	301	3	7.0	5.0	05
5.4 "	25	9.1	1.6	152	20	8.6	3.2	119					1	13.0	13.0	130	5	15.0	11.3	310				
6.0 "	24	8.4	1.5	084	18	10.8	3.2	066					1	6.0	6.0	190	4	20.3	16.6	296				
7.2 "	17	9.4	5.2	089	15	10.5	5.0	059					1	10.0	10.0	174	2	42.0	39.2	295				
9.0 "	7	13.0	12.4	077	11	12.3	9.9	088																

Station	BAGHDOGRA				BAIRAGARH								BAMRAULI											
	1430				0130				0730				1430				0130				0830*			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	5.9	4.1	107	31	8.9	7.4	270	31	9.3	7.7	268	31	8.4	6.9	287	31	4.2	2.5	085	26	6.4	1.3	3
0.15 a. g.	30	7.8	5.7	106	30	24.2	18.9	279	31	16.1	12.9	275	31	10.9	8.7	282	31	12.8	6.5	092	26	7.6	0.7	3
0.3 a. m. s. l.	30	7.5	5.0	105													31	13.9	7.0	094	26	8.0	0.4	0
0.6 "	30	8.0	6.1	101	30	21.4	16.6	272	31	14.6	11.6	273	31	10.0	7.8	282	31	13.7	4.1	099	26	9.4	2.0	2
0.9 "	29	8.2	5.6	103	30	27.0	20.9	284	31	20.9	17.1	299	31	11.1	8.7	287	31	12.3	0.5	100	26	10.8	4.2	2
1.5 "	25	8.2	3.0	122	30	20.0	15.4	307	31	15.5	12.2	217	31	11.1	8.4	301	28	12.6	5.2	302	26	13.1	8.3	2
2.1 "	21	8.6	0.6	161	30	13.3	8.8	331	30	10.4	7.2	338	29	10.8	8.1	306	20	11.3	8.2	303	26	14.8	10.0	3
3.0 "	16	11.2	4.4	284	21	10.7	6.5	357	30	10.3	5.7	352	27	13.3	8.7	325	10	11.5	10.5	303	26	17.0	14.0	3
4.5 "	8	8.4	1.4	022					15	12.7	5.2	051	21	14.3	10.4	359	1	7.0	7.0	070	22	17.6	13.1	3
5.4 "	4	5.0	2.1	263					11	14.4	9.0	057	17	13.5	10.8	001	1	9.0	9.0	060	21	8.6	11.7	3
6.0 "	3	13.0	6.6	201					10	14.5	7.5	067	16	13.7	11.1	011					22	18.1	10.2	3
7.2 "	1	6.0	6.0	065					7	14.4	4.0	064	14	17.7	13.0	023					22	16.8	7.6	3
9.0 "									2	4.0	2.5	079	10	18.1	12.2	011					15	16.7	4.0	3

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

May 1956

Station	BAMRAULI								BANGALORE												BAREILLY			
	1430				2030*				0130				0730				1430				0730			
Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
	31	8.6	4.2	328	31	5.2	2.3	028	31	11.4	11.3	245	31	11.1	10.5	262	31	11.6	10.1	260	31	6.1	4.3	085
g.	31	10.8	4.3	357	31	7.9	3.2	025	31	17.9	17.7	245	31	16.3	15.8	255	31	16.6	13.6	260	31	12.3	7.5	084
m. s. l.	31	11.3	4.5	356	31	8.8	3.3	015													31	11.0	7.1	082
„	31	11.0	4.7	340	31	11.2	3.9	354													31	18.1	7.7	120
„	31	11.0	4.9	327	31	12.9	3.9	346													31	17.1	4.3	138
„	30	10.5	6.0	309	31	14.1	6.5	305	30	26.4	24.8	258	30	28.0	26.0	264	31	16.8	14.2	265	31	12.9	3.7	257
„	30	12.7	9.0	302	31	15.4	9.6	337	27	17.0	10.9	276	29	20.8	14.1	281	27	13.4	9.6	277	31	12.9	9.9	293
„	25	15.7	13.1	299	31	18.9	15.1	295	14	12.3	7.4	035	22	12.7	1.9	028	20	10.5	2.3	353	27	17.2	15.5	308
„	19	17.1	13.9	306	31	19.3	16.4	305	7	7.3	6.1	053	18	11.8	6.1	109	14	10.4	3.8	107	13	15.9	14.4	340
„	17	16.9	11.7	315	31	19.4	16.0	314	2	13.5	8.8	354	14	10.5	5.7	072	13	9.6	2.3	216	12	13.1	12.0	336
„	16	18.7	12.2	330	31	19.4	15.1	310	2	8.5	6.1	294	12	8.8	4.7	109	12	8.1	2.5	323	10	10.9	9.3	337
„	10	21.4	11.1	347	30	21.5	14.6	329					7	7.9	2.8	073	11	10.9	6.1	053	7	10.1	7.9	353
„	2	17.0	11.8	034	26	20.6	10.4	315					4	14.0	13.5	080	10	11.6	10.4	085	3	12.3	10.5	330

Station	BAREILLY				BEGUMPET												BHAGALPUR							
	1430				0130				0730				1430				0730			1430				
Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
	31	5.7	1.3	058	31	9.3	6.9	264	31	10.1	8.4	275	31	9.4	6.6	290	31	4.5	3.9	099	31	7.4	5.0	077
g.	31	10.8	0.8	005	30	19.3	15.0	276	31	16.7	13.4	275	31	11.6	8.6	294	30	10.7	8.5	102	30	13.4	9.7	068
m. s. l.	31	11.0	1.1	011																	30	13.4	9.7	071
„	31	11.6	0.4	099	30	13.1	10.2	273	31	12.5	10.5	278	31	10.5	7.7	294	28	13.4	11.9	145	29	12.9	7.3	083
„	31	10.5	1.0	244	30	24.7	18.3	281	31	23.4	18.9	294	31	12.0	9.1	297	25	14.5	8.5	168	29	11.9	4.9	101
„	31	9.5	5.5	278	30	22.5	17.0	284	30	24.3	19.5	305	31	12.5	9.3	297	20	13.1	4.3	154	28	12.0	3.1	194
„	31	12.1	11.1	296	30	15.6	9.6	300	29	16.3	10.7	314	31	12.5	9.4	307	17	15.8	1.2	120	21	13.7	6.3	265
„	31	19.9	18.6	308	22	9.5	3.3	359	29	10.7	4.5	357	25	10.5	5.5	342	9	19.2	5.5	277	16	16.0	12.5	290
„	29	19.0	16.7	306					22	13.8	7.0	064	15	11.3	5.5	300	8	8.3	1.8	079	9	15.3	2.3	285
„	26	20.7	18.0	311					19	10.5	4.7	066	13	11.5	6.0	028	5	13.2	3.8	087	5	18.6	14.2	283
„	25	21.6	18.8	310					17	10.4	4.4	102	11	12.2	9.5	035	4	11.3	4.1	091	4	17.5	15.3	305
„	20	24.3	20.6	314					1	10.0	10.0	115	11	12.8	8.9	054	4	12.3	8.6	091	3	24.6	21.3	292
„	10	18.8	11.6	344									7	16.0	15.0	058	2	20.0	19.7	276	2	22.0	20.7	320

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

May 1956

Station	BHUBANESHWAR												BHUJ											
	0130				0730				1430				0130				0730				1430			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	10.2	8.3	217	31	11.2	9.3	221	31	12.5	9.6	193	31	8.2	7.9	228	31	6.6	6.3	232	31	8.2	7.4	238
0.15 a. g.	25	13.9	9.9	213	31	12.5	9.9	212	27	11.6	9.1	199	31	19.4	18.5	239	31	16.2	15.1	240	31	13.8	12.6	242
0.3 a. m. s. l.	25	15.4	11.4	214	31	12.2	8.7	216	27	12.6	9.7	202	31	21.8	20.5	241	31	18.7	17.0	244	31	13.8	12.7	244
0.6 "	23	17.7	12.8	223	27	15.5	10.1	235	27	11.5	8.5	205	31	25.3	22.5	252	31	24.9	22.3	261	31	13.7	12.6	248
0.9 "	19	16.3	10.0	238	22	15.7	10.4	265	27	8.7	5.4	228	31	17.1	14.7	257	30	20.9	17.8	268	31	13.8	12.5	251
1.5 "	14	9.4	3.8	255	19	14.6	10.1	290	23	9.9	6.4	307	31	11.6	8.2	243	29	14.1	11.0	253	31	10.0	7.3	251
2.1 "	11	10.5	4.8	308	17	14.2	10.1	314	19	10.5	6.2	323	30	8.9	3.3	225	29	12.5	7.6	240	29	7.9	2.2	234
3.0 "	5	11.2	9.3	334	15	14.3	11.2	330	15	12.4	9.4	006	28	8.7	3.4	104	25	10.6	2.9	170	29	11.2	3.9	084
4.5 "	2	8.0	7.5	028	8	12.4	7.7	006	3	8.3	8.1	309	10	16.8	12.5	086	18	20.3	7.2	094	29	17.0	11.2	071
5.4 "					5	13.0	0.7	180					5	20.8	15.9	053	15	21.1	16.7	087	29	19.4	14.0	071
6.0 "					3	10.0	7.3	153					5	22.2	17.0	051	12	19.7	17.2	074	25	19.3	14.3	061
7.2 "					1	15.0	15.0	105					2	19.0	19.0	055	8	25.6	21.6	069	24	20.7	14.6	061
9.0 "					1	12.0	12.0	140									5	26.2	21.5	064	14	14.5	8.1	051

Station	BIKANER												CHIKALTHANA											
	0130				0730				1430				0130				0730				1430			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	5.5	4.8	230	31	6.7	5.8	237	31	5.5	4.5	254	31	10.9	9.7	268	31	9.3	8.4	268	31	9.2	4.1	281
0.15 a. g.	30	20.5	15.7	249	31	18.0	15.1	247	31	10.3	8.1	255	29	18.3	16.9	272	31	15.2	13.4	279	30	12.4	6.4	281
0.3 a. m. s. l.	31	16.1	12.2	242	31	14.7	12.6	243	31	9.9	7.8	255												
0.6 "	29	24.9	19.4	252	31	22.8	19.9	262	31	11.0	9.1	256												
0.9 "	29	22.1	18.3	256	31	22.5	20.0	263	31	10.7	9.5	262	29	20.2	17.6	290	31	17.8	15.2	298	30	13.4	6.7	291
1.5 "	25	15.3	12.0	267	24	16.9	14.2	270	31	10.3	9.0	267	29	18.1	14.3	305	31	16.0	11.4	309	30	13.1	6.7	291
2.1 "	19	11.1	8.7	300	17	10.3	6.8	275	31	11.2	7.9	277	29	9.7	3.5	308	31	11.7	2.0	340	30	11.1	5.8	301
3.0 "	2	6.5	6.4	350	14	12.6	8.5	315	28	12.7	7.2	290	29	10.1	1.6	131	30	13.0	2.7	103	27	10.7	3.7	301
4.5 "					6	10.3	5.3	030	25	14.7	6.3	310	7	9.6	2.4	137	24	13.0	6.1	120	20	11.7	0.6	111
5.4 "					5	11.4	7.0	071	23	17.2	10.8	333	3	8.0	7.7	118	18	12.2	6.8	139	11	16.5	6.3	011
6.0 "					4	8.5	5.2	160	23	20.4	12.6	322	2	6.5	6.3	127	15	13.8	8.8	097	10	17.4	8.9	011
7.2 "					1	7.0	7.0	035	9	21.9	13.6	304					8	16.6	11.6	051	6	16.7	14.6	011
9.0 "					1	12.0	12.0	285									3	12.7	10.5	064	2	11.0	5.5	111

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

May 1956

No.	COCHIN												DARJEELING								DUM DUM			
	0130				0730				1430				0730				1430				0130			
in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
ce	31	2.8	1.2	059	31	2.8	1.1	080	31	5.1	3.6	285	10	2.2	1.0	126	11	1.4	1.3	228	31	6.5	4.1	150
a. g.	25	6.0	1.9	319	24	5.3	1.1	026	27	5.0	4.4	286	4	4.5	3.9	132	2	4.0	3.1	239	30	13.4	11.2	177
m. s. l.	25	7.1	4.1	291	24	6.3	4.7	288	27	7.1	6.0	281									30	16.3	13.8	185
„	25	9.1	7.4	252	24	9.1	7.0	286	27	10.1	9.2	284									27	17.8	16.6	194
„	25	10.6	9.6	285	24	11.2	10.0	281	26	11.4	10.5	282									25	15.9	14.0	195
„	22	12.4	11.8	281	21	13.1	12.5	279	22	12.4	11.5	283									19	10.6	6.1	195
„	18	13.0	12.2	278	19	11.9	10.6	275	20	12.2	10.5	281									15	7.4	0.2	322
„	4	7.5	3.8	260	13	13.0	6.2	278	17	12.4	8.3	283	4	7.7	6.3	112	1	7.0	7.0	100	13	10.5	4.0	321
„					6	9.5	7.3	091	13	10.9	3.1	319									1	9.0	9.0	125
„					6	7.7	6.8	099	11	7.1	2.7	255												
„					3	6.7	4.6	075	10	7.9	4.1	264												
„					3	7.3	7.0	073	9	7.3	1.6	302												
„									3	8.3	7.5	097												

No.	DUM DUM												GADAG															
	0830 *				1430				2030 *				0130				0730				1430							
in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
ce	30	8.4	5.9	167	31	9.3	5.1	169	28	8.8	6.6	159	31	11.6	10.3	249	31	11.0	9.5	244	31	9.5	7.5	256				
a. g.	30	14.1	10.3	173	30	13.2	9.9	177	28	18.4	15.4	161	31	20.8	19.8	247	31	16.7	15.5	239	31	13.8	11.5	256				
m. s. l.	30	15.1	11.1	180	30	16.3	11.7	177	28	18.2	15.3	161																
„	30	15.7	11.5	190	30	15.8	12.0	178	28	16.8	14.4	169																
„	30	16.4	10.8	201	29	14.6	11.8	182	28	14.4	11.0	170	31	23.0	21.0	258	31	19.4	15.7	259	31	15.4	13.2	256				
„	30	13.3	7.5	212	27	9.1	3.6	211	28	11.3	6.5	175	23	19.4	14.4	275	21	19.1	14.5	303	31	15.2	12.3	260				
„	30	11.8	2.1	201	21	9.7	4.0	291	28	10.4	2.7	227	20	12.8	5.6	297	18	13.4	7.0	316	25	12.8	9.1	278				
„	30	12.9	5.1	308	16	13.2	8.3	304	28	13.6	6.6	308	18	10.1	1.8	111	17	10.1	2.7	066	13	10.3	2.9	006				
„	30	13.8	6.5	290	13	11.9	7.4	295	28	17.3	9.1	305	10	12.9	10.9	096	13	10.7	7.3	101	8	12.3	10.0	091				
„	30	12.3	3.6	260	9	12.1	3.1	282	28	15.6	5.2	330	3	10.0	9.6	079	11	9.8	6.3	074	7	10.3	9.1	086				
„	30	15.2	1.9	219	8	16.1	3.6	330	28	14.0	4.5	329	1	10.0	10.0	025	7	12.3	10.0	075	5	11.0	8.9	069				
„	30	12.5	5.9	240	3	14.7	10.8	006	28	14.3	5.6	299					5	13.2	9.2	082	4	15.0	12.4	072				
„	30	14.4	5.4	242	2	25.5	25.2	352	28	13.1	5.8	277					3	9.3	7.6	067	3	8.3	8.2	081				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

May 1956

Station.	GAUHATI												GAYA											
	0130				0830*				1430				2030*				0130				0730			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	2.5	0.6	063	30	3.9	2.2	065	31	4.6	1.8	008	31	2.8	1.1	112	31	5.0	3.3	103	31	4.2	2.7	100
0.15 a. g.	27	5.7	1.2	115	29	5.3	3.0	070	28	6.4	3.1	031	29	4.5	1.4	086	30	12.2	8.5	120	31	9.6	5.3	121
0.3 a. m. s. l.	27	6.3	0.9	346	29	6.0	3.0	070	28	6.6	2.8	032	29	5.0	1.3	072	30	12.2	8.8	124	31	10.1	4.5	120
0.6 "	26	6.3	1.1	315	29	7.5	2.5	076	28	7.0	1.5	009	29	6.6	0.8	075	30	13.7	9.2	145	31	12.5	5.2	180
0.9 "	25	7.9	5.1	250	29	8.9	0.6	100	27	8.4	1.8	244	29	7.8	0.4	215	30	13.3	7.0	159	31	12.0	4.3	210
1.5 "	20	12.3	6.9	223	28	12.6	5.9	220	25	11.2	7.4	228	29	11.2	6.6	303	29	11.8	3.3	285	31	12.5	3.9	290
2.1 "	16	13.8	6.8	236	28	15.9	8.3	232	23	13.3	8.6	227	28	15.4	10.3	235	25	14.8	9.0	300	29	14.2	5.2	310
3.0 "	8	12.1	11.0	254	29	16.5	10.4	243	21	14.3	7.5	234	28	18.4	10.5	249	14	19.5	14.6	307	27	17.5	9.4	310
4.5 "	1	8.0	8.0	259	29	16.9	7.6	268	14	16.2	1.3	176	31	16.9	9.3	251					10	12.0	6.9	010
5.4 "					29	16.2	7.7	237	10	15.7	5.3	254	30	17.7	11.0	254					8	12.3	8.6	060
6.0 "					29	17.4	8.2	238	8	13.5	3.0	210	30	17.7	10.3	256					8	10.4	9.8	050
7.2 "					27	19.2	7.5	235	5	10.0	0.8	263	31	18.9	12.7	270					5	17.0	15.8	060
9.0 "					23	24.1	17.5	269	3	16.0	13.8	267	28	21.4	15.0	277					1	4.0	4.0	150

Station.	GAYA				GOPALPUR												GORAKHPUR											
	1430				0130				0730				1430				0730				1430							
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	7.4	2.7	010	31	10.8	10.0	212	31	8.5	7.8	213	31	13.2	11.6	194	31	5.1	4.4	085	31	4.2	1.9	110				
0.15 a. g.	31	12.3	4.9	028	26	18.0	16.9	207	31	16.5	15.3	206	31	17.5	15.9	190	31	12.3	10.7	051	30	9.3	3.9	110				
0.3 a. m. s. l.	31	12.3	5.4	028	26	17.9	16.9	212	31	14.6	13.3	222	31	16.3	14.5	196	31	13.7	10.5	087	29	9.6	3.7	110				
0.6 "	31	11.0	5.2	008	24	17.1	15.5	222	30	11.6	8.6	233	31	10.3	7.7	211	31	15.7	9.9	114	29	11.1	4.1	110				
0.9 "	31	9.9	4.0	004	24	14.5	12.3	231	28	12.5	8.9	260	30	9.1	5.5	263	31	14.1	8.4	124	29	11.6	2.8	110				
1.5 "	30	12.7	4.2	354	21	12.2	9.0	264	27	14.5	9.5	288	31	10.3	8.6	320	30	12.7	3.1	129	29	12.3	1.6	110				
2.1 "	26	15.3	6.3	309	18	10.8	7.3	294	24	11.3	8.4	307	30	10.7	9.1	334	30	14.1	4.1	289	27	15.5	8.5	110				
3.0 "	18	17.6	7.8	308	13	12.4	9.0	326	20	11.7	7.5	344	26	12.2	10.1	341	23	13.5	9.6	303	24	18.5	15.3	110				
4.5 "	9	17.3	6.7	333	6	11.0	7.9	340	13	14.6	8.5	004	23	13.4	9.5	344	13	12.6	10.5	329	20	20.1	16.9	110				
5.4 "	3	21.7	18.0	319	1	12.0	12.0	110	8	15.7	3.9	324	17	11.8	6.4	352	11	10.0	6.5	360	16	21.1	15.8	110				
6.0 "	2	17.5	5.1	304	1	14.0	14.0	100	8	15.3	3.4	032	16	12.4	5.5	007	11	11.4	7.9	023	14	19.3	13.1	110				
7.2 "									6	8.0	1.6	020	12	11.9	6.6	040	6	13.7	7.3	051	10	19.0	11.7	110				
9.0 "									4	11.5	7.3	103	9	11.4	3.0	089	3	8.3	0.6	008	8	25.9	19.8	110				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

May 1956

Station	GWALIOR												IMPHAL								JABALPUR							
	0130				0730				1430				0730				1430				0130							
Height in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	3.4	1.3	274	31	3.0	2.3	260	31	5.3	3.4	317	30	1.3	0.8	161	31	4.5	2.3	235	31	4.1	2.8	240				
500 ft. a. g.	31	14.3	4.9	255	31	11.8	9.3	267	31	10.6	7.3	313	30	3.0	1.7	169	26	7.5	4.6	231	31	15.7	8.8	265				
1000 ft. a. m. s. l.	31	11.9	4.3	255	31	8.9	6.5	263	31	9.4	6.6	313																
1500 ft.	31	17.2	6.1	260	31	17.7	14.0	293	31	11.3	8.2	310													31	16.9	9.5	267
2000 ft.	31	17.7	8.0	275	31	16.8	13.3	299	31	12.6	9.1	050	30	3.0	1.6	157	26	6.6	3.7	231	31	19.9	12.0	279				
2500 ft.	31	14.2	10.3	302	31	13.8	10.9	313	31	12.5	9.2	312	30	6.6	3.0	195	26	11.5	7.8	238	31	15.3	9.2	300				
3000 ft.	28	13.3	11.5	312	31	14.7	12.4	314	31	13.7	10.8	305	25	9.9	7.5	240	21	11.8	6.4	250	31	13.8	9.3	309				
3500 ft.																												
4000 ft.	22	15.3	13.5	316	27	16.9	14.6	324	28	16.3	13.2	313	16	14.3	11.2	262	13	12.9	6.4	254	30	13.5	10.9	331				
4500 ft.					17	18.3	14.8	337	24	19.5	14.5	313	4	3.3	1.9	026	4	6.5	0.8	346	8	16.3	12.1	004				
5000 ft.					11	18.2	13.6	360	20	20.6	16.1	321	2	6.0	5.8	008	1	1.0	1.0	095	1	16.0	16.0	280				
5500 ft.					10	17.6	12.6	356	19	20.9	14.9	321	2	8.0	3.3	036												
6000 ft.									19	25.4	15.2	315	1	2.0	2.0	020												
6500 ft.									12	27.3	15.4	320	1	22.0	22.0	065												

Station	JABALPUR								JAGDALPUR								JAIPUR											
	0730				1430				0130				0730				1430				0730							
Height in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	4.8	3.6	255	31	5.1	4.5	295	31	3.3	2.2	208	31	3.4	2.5	234	31	3.6	1.5	283	31	5.7	4.7	293				
500 ft. a. g.	31	13.6	10.4	245	31	11.0	8.9	294	30	14.2	10.1	223	29	9.9	7.6	240	30	8.1	5.1	284	31	14.7	10.9	285				
1000 ft. a. m. s. l.																												
1500 ft.	31	15.9	12.6	250	31	11.2	9.1	294	30	7.9	5.5	217	29	6.5	5.1	233	30	7.1	3.6	287	31	18.0	14.5	282				
2000 ft.	31	19.5	15.5	283	31	11.2	9.2	303	30	16.9	11.0	240	28	14.7	11.0	263	29	8.3	5.5	288	31	22.2	18.2	284				
2500 ft.	31	19.1	15.2	313	31	12.1	10.0	308	31	15.7	11.1	280	26	16.0	12.3	285	30	9.5	7.6	309	31	17.7	15.2	296				
3000 ft.	31	13.2	11.1	332	30	11.8	9.3	309	30	12.3	9.4	240	26	11.3	8.5	316	26	9.6	7.8	326	25	13.8	11.5	315				
3500 ft.																												
4000 ft.	27	13.7	11.1	345	26	12.9	9.0	325	24	9.8	7.0	337	23	11.7	9.8	005	25	11.6	7.9	336	19	12.4	9.5	328				
4500 ft.	14	13.7	7.7	005	19	17.8	12.6	339	11	12.8	10.4	027	18	12.3	8.3	016	16	13.7	10.7	333	11	13.9	8.3	351				
5000 ft.	11	13.3	9.4	038	14	15.0	11.4	359	8	10.0	2.9	031	16	11.5	3.9	023	14	12.9	10.0	335	7	11.3	9.9	045				
5500 ft.	11	12.5	7.6	047	13	15.0	11.6	012	5	13.0	2.7	317	11	16.1	8.7	063	9	15.1	11.8	009	5	10.8	4.3	057				
6000 ft.																												
6500 ft.	6	10.7	6.0	058	12	12.0	8.6	001	4	8.0	1.0	013	8	10.9	3.1	127	4	11.5	10.2	010	3	16.3	8.2	187				
7000 ft.	4	9.0	1.8	194	6	12.2	9.0	047					8	10.0	5.2	109	3	13.3	5.9	029	2	13.0	10.6	238				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

May 1956

Station.	JAIPUR				JAMSHEDPUR								JHARSUGUDA											
	1430				0730				1430				0130				0730				1430			
Time in I. S. T.																								
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	9.5	8.4	283	31	3.3	0.3	142	31	4.8	1.8	070	31	5.4	2.3	175	31	4.0	1.9	147	31	5.2	2.3	28
0.15 a. g.	31	12.7	11.0	287	31	6.0	1.2	175	30	8.4	2.5	099	31	12.1	4.1	179	31	8.0	4.5	155	30	7.1	1.4	25
0.3 a. m. s. l.					31	6.2	2.1	198	30	8.4	2.2	105	31	10.1	3.9	165	31	9.1	5.1	163	30	7.5	3.5	28
0.6 "	31	12.8	11.4	289	31	10.5	5.9	235	30	8.1	2.7	110	31	14.1	4.9	199	31	10.8	4.8	218	30	8.0	1.9	27
0.9 "	31	14.6	13.4	291	30	11.6	7.1	241	30	7.5	2.5	096	30	15.3	4.5	217	31	12.2	5.9	247	30	8.7	4.5	28
1.5 "	30	13.9	12.4	299	29	9.6	3.2	283	30	8.8	0.2	200	30	12.7	5.3	290	30	13.8	7.7	295	29	10.7	7.6	30
2.1 "	30	13.3	11.4	297	29	10.9	6.0	318	26	10.0	3.9	303	19	13.4	9.3	330	29	12.3	8.5	327	26	11.9	8.5	31
3.0 "	28	12.3	8.2	316	26	13.5	11.1	315	18	14.8	11.8	304	10	16.0	11.7	332	24	15.3	12.5	348	20	14.0	10.6	32
4.5 "	23	15.4	9.9	311	14	10.7	6.0	252	6	17.0	14.0	313					9	21.8	15.7	360	10	16.7	15.3	34
5.4 "	19	16.9	10.0	309	9	7.9	0.8	300	3	14.6	9.9	018									8	14.9	11.1	36
6.0 "	17	17.6	9.7	307	6	12.0	2.4	132	3	16.0	11.6	043									4	15.5	8.5	01
7.2 "	6	23.0	17.5	308																	1	1.0	1.0	3.
9.0 "	2	25.5	17.0	329																	1	4.0	4.0	10

Station.	JODHPUR								MADRAS																			
	0130				0830*				1430				2030*				0130				0830 *							
Time in I. S. T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	9.5	8.8	238	26	11.6	9.6	235	31	10.9	8.8	245	26	8.1	7.5	245	31	7.5	6.4	223	31	13.7	11.3	2				
0.15 a. g.	29	20.3	17.3	254	26	14.2	11.0	230	30	11.5	10.1	246	25	10.4	9.8	240	31	16.2	14.6	234	31	15.6	14.5	2				
0.3 a. m. s. l.	29	16.0	13.7	241	26	13.7	10.2	230	30	11.0	9.5	250	25	9.7	9.0	240	31	19.7	18.0	244	31	16.9	15.9	2				
0.6 "	29	23.2	20.6	252	26	16.1	13.3	240	30	10.8	9.7	248	25	12.5	11.7	240	31	20.5	18.8	252	31	19.5	18.9	2				
0.9 "	29	22.1	19.2	251	26	18.5	16.1	245	30	11.0	10.3	254	25	15.5	14.4	240	31	18.3	16.9	261	31	21.2	19.6	2				
1.5 "	23	16.0	12.2	263	26	17.1	13.0	260	31	9.5	7.1	261	25	16.0	14.5	255	31	15.3	13.4	274	31	17.9	14.5	2				
2.1 "	17	11.7	4.8	265	26	12.8	7.0	290	30	9.4	5.9	279	25	14.6	12.0	270	31	13.1	9.3	292	31	14.8	8.8	2				
3.0 "	12	10.1	3.9	180	26	12.0	5.5	360	29	9.8	4.1	307	25	12.7	8.5	305	23	11.6	3.8	010	31	14.0	3.6	3				
4.5 "	2	8.5	7.1	022	26	15.8	9.5	020	29	13.3	5.2	330	25	16.0	11.0	360	6	8.7	5.9	029	29	12.2	1.7	2				
5.4 "	1	7.0	7.0	209	26	19.8	9.9	360	29	17.6	8.2	354	25	19.0	13.2	360					28	11.7	3.4	3				
6.0 "	1	12.0	12.0	135	24	22.1	9.8	350	29	19.4	9.3	352	24	19.7	14.0	005					27	11.0	2.9	3				
7.2 "					24	22.8	10.2	335	24	22.9	11.6	360	24	18.7	11.6	350					27	12.4	3.5	0				
9.0 "					21	21.4	15.0	305	11	19.0	12.1	317	21	17.3	10.0	340					21	16.8	15.3	0				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

May 1956

Station.	MADRAS								MANGALORE												MASULIPATNAM							
	1430				2030*				0130				0730				1430				0130							
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D				
Height in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	8.4	2.4	143	31	11.6	10.3	174	31	6.6	1.2	210	31	6.1	2.6	133	31	9.0	5.9	241	31	7.2	4.6	208				
15 a.g.	31	11.9	3.1	189	31	12.8	11.1	180	25	11.5	5.2	244	26	9.8	2.2	150	29	12.1	7.8	245	30	18.2	12.7	219				
3 a. m. s. l.	31	10.0	3.0	233	31	14.2	11.6	190	25	12.2	6.9	246	26	11.2	5.6	225	29	13.2	8.4	250	30	22.1	15.5	222				
6 "	31	8.9	6.2	268	31	13.6	10.6	210	25	13.6	9.2	252	24	11.5	7.2	258	27	13.4	8.9	262	30	21.6	15.3	244				
9 "	31	10.1	8.0	279	31	12.3	8.9	236	23	14.2	10.2	257	24	12.9	10.0	267	25	12.7	8.6	266	28	18.0	13.5	254				
5 "	31	13.6	11.7	278	31	13.9	11.3	270	18	14.7	12.1	272	20	14.9	11.3	277	23	13.3	8.1	274	28	15.0	12.5	276				
1 "	30	13.8	9.7	287	31	14.6	11.5	276	13	12.6	8.3	268	18	13.8	8.4	280	20	13.1	6.7	292	27	13.0	10.3	293				
0 "	27	12.1	4.6	294	31	13.9	9.2	284	10	14.4	4.6	145	15	14.8	2.2	229	16	13.8	3.2	135	20	8.0	3.9	324				
5 "	26	10.3	2.3	327	30	11.7	4.5	316	3	17.3	17.2	105	9	15.0	6.8	125	13	12.5	7.3	145	2	4.0	3.9	132				
4 "	23	9.7	1.6	343	30	10.7	4.5	326	3	14.7	14.7	108	6	13.8	10.7	131	10	10.3	5.3	151								
0 "	21	7.6	2.3	005	30	10.1	4.1	339	3	19.3	19.1	069	4	7.3	3.7	061	10	10.6	2.3	150								
2 "	20	8.3	3.0	063	30	10.2	4.1	031					3	11.3	4.8	109	9	11.9	5.3	048								
0 "	15	12.8	11.7	077	16	14.4	9.6	085					2	15.0	11.9	076	7	14.1	8.8	107								

Station.	MASULIPATNAM								MINICOY												MOHANBARI							
	0730				1430				0130				0730				1430				0130							
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Height in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	5.5	3.2	243	31	7.8	2.0	235	31	9.6	9.2	268	31	7.6	7.1	276	31	8.7	8.4	275	31	2.6	2.2	046				
15 a. g.	31	13.7	10.1	252	31	8.9	3.1	276	30	17.0	15.7	265	27	13.9	9.3	274	28	15.0	14.3	268	19	9.5	8.5	040				
3 a. m. s. l.	31	19.1	15.4	264	31	9.7	5.5	290	30	17.0	15.6	267	27	16.1	15.3	275	28	17.2	16.3	267	19	9.3	8.3	044				
6 "	31	22.0	18.6	276	31	10.5	7.9	291	30	17.4	16.0	269	27	17.5	16.5	276	28	19.1	18.2	269	19	8.0	5.2	058				
9 "	31	21.9	18.5	280	31	11.5	9.6	295	29	13.6	8.6	275	27	18.4	17.7	280	26	19.8	19.0	273	17	6.2	0.9	105				
5 "	30	17.1	13.4	285	31	14.2	12.4	302	20	18.3	17.6	279	27	18.4	17.9	282	22	17.8	17.5	279	16	9.6	5.8	207				
1 "	29	12.5	7.9	298	27	13.5	10.4	317	13	18.2	17.7	277	20	16.9	16.1	279	17	18.8	17.9	278	14	11.4	6.9	222				
0 "	25	11.7	4.7	348	26	12.7	7.3	330	10	16.5	14.0	281	13	13.3	9.7	277	11	14.0	11.7	288	10	9.0	5.6	258				
5 "	21	12.9	5.5	029	24	12.2	6.0	317	6	10.3	2.9	275	8	8.0	4.9	271	6	10.2	8.7	301	3	8.0	3.0	021				
4 "	16	12.7	2.0	023	19	10.7	5.1	336	2	9.5	7.9	250	7	11.7	6.2	269	3	8.7	8.4	285	1	9.0	9.0	005				
0 "	11	11.5	2.2	130	18	12.2	6.4	331	1	3.0	3.0	270	4	8.0	3.8	296	3	9.3	4.2	334	1	11.0	11.0	340				
2 "	2	7.5	5.5	114	11	8.0	4.3	360					3	6.0	3.9	255	3	4.0	2.7	309								
0 "	1	18.0	18.0	105									3	6.7	4.6	067	3	10.7	10.4	055								

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9·0 Km. above mean sea level

May 1956

Station.	MOHANBARI								MUSSOORIE								NAGPUR							
	0730				1430				0730				1430				0130				0830 *			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	3·4	2·4	051	31	3·2	2·2	053	31	1·4	6·3	234	31	5·1	4·9	216	31	9·1	5·9	287	31	12·6	9·3	284
0·15 a. g. . .	19	7·6	5·5	053	28	6·4	4·8	050	27	6·3	2·4	293	27	8·9	8·6	212	30	18·8	13·5	282	31	13·2	9·7	298
0·3 a. m. s. l. . .	19	7·8	5·8	053	28	6·3	4·5	053																
0·6 „ . . .	18	7·4	5·1	062	27	6·1	3·7	080									30	20·9	15·0	290	31	14·0	10·6	301
0·9 „ . . .	18	7·9	2·7	090	25	5·9	2·5	151									30	21·4	15·1	295	31	15·6	12·0	308
1·5 „ . . .	16	7·0	1·2	170	23	9·7	7·2	208									30	14·3	9·3	313	31	14·3	10·3	319
2·1 „ . . .	14	6·9	3·3	208	20	10·9	9·0	209	27	4·9	2·2	255	27	9·2	8·9	213	28	9·9	5·0	337	29	12·9	8·4	333
3·0 „ . . .	13	9·6	5·1	217	15	10·8	6·5	212	24	9·5	8·9	305	25	9·2	7·5	272	19	8·9	4·7	027	29	13·8	7·2	358
4·5 „ . . .	11	9·5	2·0	298	12	10·5	4·7	274	19	14·9	13·0	327	14	14·6	12·8	333	1	13·0	13·0	040	25	13·2	4·7	358
5·4 „ . . .	4	10·3	7·2	049	9	14·0	4·5	255	17	20·0	17·9	322	13	18·8	16·8	326					22	14·4	5·6	031
6·0 „ . . .	4	15·7	14·8	018	6	15·7	5·5	295	12	21·3	20·2	320	10	28·7	26·8	326					22	14·2	4·9	050
7·2 „ . . .	1	15·0	15·0	340	5	18·4	11·1	324	6	29·5	24·5	310	8	37·6	32·5	312					19	13·3	2·8	029
9·0 „ . . .	1	20·0	20·0	345	3	35·7	25·5	302	1	25·0	25·0	305	3	57·0	49·7	305					14	12·4	5·3	060

Station.	NAGPUR								NEW DELHI															
	1430				2030*				0130				0830*				1430				2030*			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	7·5	4·8	304	28	8·2	3·3	275	31	6·0	1·0	150	31	8·2	1·4	262	31	9·4	4·9	328	31	7·2	1·2	014
0·15 a. g. . .	31	8·3	4·6	305	28	9·5	4·7	282	31	18·9	3·3	168	31	9·4	2·6	265	31	10·9	6·1	332	30	8·7	2·8	351
0·3 a. m. s. l. . .									31	13·8	2·2	194	31	9·0	2·2	261	31	10·7	5·4	340	30	8·2	2·2	354
0·6 „ . . .	31	8·5	4·8	306	28	10·8	6·0	286	31	18·9	4·2	205	31	11·6	4·8	276	31	11·3	5·7	325	30	11·3	3·7	33
0·9 „ . . .	31	9·1	5·2	305	28	13·4	8·3	295	31	17·3	6·0	250	31	13·7	6·0	276	31	12·1	6·7	308	30	13·9	5·7	32
1·5 „ . . .	31	9·3	5·9	302	28	12·2	7·9	296	31	15·6	11·8	298	31	14·5	10·5	300	30	12·2	9·9	299	30	14·1	9·7	32
2·1 „ . . .	31	10·2	6·7	321	28	10·9	7·4	208	30	16·3	14·4	306	31	14·3	12·3	304	30	14·4	13·1	304	30	15·1	13·7	29
3·0 „ . . .	30	12·6	8·4	343	28	11·6	8·2	342	17	17·2	15·8	309	31	17·2	15·2	317	28	19·9	18·1	314	30	19·2	17·7	30
4·5 „ . . .	16	16·9	10·1	335	27	12·4	8·0	007					31	17·5	15·2	321	23	21·7	18·8	323	30	19·5	17·7	31
5·4 „ . . .	12	16·4	10·7	033	25	13·0	9·5	034					31	19·3	15·5	326	21	22·4	19·4	319	30	21·1	18·8	32
6·0 „ . . .	10	18·5	13·1	044	24	14·0	10·1	043					31	20·0	14·6	329	21	22·5	19·1	318	30	22·0	18·3	32
7·2 „ . . .	6	19·3	16·7	040	23	14·4	8·2	040					31	20·5	13·5	313	19	24·6	20·1	325	30	22·6	16·8	31
9·0 „ . . .	4	12·0	10·1	061	17	13·1	4·5	061					29	22·9	17·7	301	17	27·8	24·4	325	30	22·9	14·7	30

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

May 1956

Station.	POONA																PORT BLAIR							
	0130				0730				1430				2030*				0130				0730			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Height in Km.																								
Surface	31	4.2	3.7	263	31	3.8	2.9	260	31	6.5	4.0	260	20	7.2	5.8	263	31	6.8	6.1	231	31	6.4	6.0	228
15 a. g.	31	10.9	10.3	261	31	10.3	8.3	261	31	12.3	9.1	260	20	12.7	11.9	265	28	16.1	14.9	231	30	12.2	11.5	231
3 a. m. s. l.																	28	17.7	16.6	232	30	13.8	13.2	232
5 "	31	6.2	5.9	264	31	6.2	4.8	262	31	8.6	6.0	263	20	8.8	8.2	266	28	20.1	18.9	236	30	19.0	18.0	236
9 "	31	13.0	11.6	264	31	12.8	10.2	267	31	12.2	9.2	264	20	14.5	13.1	263	28	19.0	18.2	239	30	18.0	17.1	238
5 "	30	15.3	9.0	282	29	14.6	8.2	291	30	12.8	9.1	278	20	16.2	10.7	276	24	15.7	14.9	240	28	14.4	13.6	237
1 "	28	10.6	3.9	258	28	12.5	2.4	265	30	13.4	7.3	273	20	12.3	2.9	342	20	14.2	13.4	241	26	13.9	12.5	241
0 "	25	10.1	5.4	199	23	13.6	3.7	133	22	12.3	6.0	206					7	13.0	10.5	250	22	12.9	10.0	253
5 "	4	15.3	9.5	109	14	12.4	8.1	145	14	14.1	7.9	137									5	14.4	7.9	281
4 "	1	17.0	17.0	095	13	14.5	6.4	095	12	13.4	6.2	105									3	8.0	4.6	310
0 "	1	18.0	18.0	120	11	15.5	7.0	064	11	13.6	9.4	082									3	7.7	5.1	323
2 "					7	19.1	12.6	068	8	16.7	14.3	062									1	5.0	5.0	105
0 "					4	13.5	11.5	071	5	24.2	20.1	083												

Station.	PORT BLAIR				RAIPUR								SANTACRUZ											
	1430				0130				0730				1430				0130				0830*			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Height in Km.																								
Surface	31	11.4	10.7	226	31	5.3	2.9	224	31	5.7	3.4	254	31	3.4	2.3	269	31	3.8	2.5	221	31	6.6	4.0	235
15 a. g.	29	15.4	14.4	227	29	16.0	9.3	249	30	13.9	8.3	261	31	8.3	5.6	279	30	10.1	7.4	225	31	10.2	5.2	240
3 a. m. s. l.	29	16.2	15.2	230													30	10.5	8.2	225	31	10.5	5.0	240
6 "	29	17.7	16.6	233	29	18.3	12.3	257	30	17.8	12.8	279	31	8.9	5.6	282	30	11.0	8.0	229	31	10.6	4.5	250
9 "	24	18.1	17.1	236	29	19.4	12.9	267	30	20.3	14.6	283	31	8.7	5.2	294	30	11.8	7.7	238	31	10.3	3.7	255
1.5 "	15	14.8	13.8	244	29	14.5	9.6	294	30	15.9	11.8	304	30	10.7	7.9	320	24	10.7	3.7	290	31	12.4	2.8	285
3.1 "	11	13.9	12.2	259	29	12.8	9.6	320	30	13.1	10.1	333	30	11.8	9.0	327	16	12.3	1.6	221	31	13.6	1.1	305
3.0 "	6	17.5	15.0	284	25	13.9	10.6	339	25	12.8	9.1	346	27	13.5	8.7	335	13	13.2	5.5	173	31	15.8	3.5	140
4.5 "	1	23.0	23.0	230	2	9.5	5.9	352	17	11.5	6.5	011	23	17.9	13.1	326					30	15.4	7.5	130
5.4 "									9	11.3	5.7	050	13	15.9	11.3	324					29	16.0	7.3	095
5.0 "									7	10.9	6.6	109	9	12.7	7.3	357					29	15.7	8.6	085
7.2 "									1	7.0	7.0	020	5	7.8	3.8	003					27	14.6	8.9	070
9.0 "													3	10.3	9.6	078					21	11.8	8.3	080

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

May 1956

Station.	SANTACRUZ								TEZPUR												TIRUCHIRAPALLI			
	1430				2030*				0130				0730				1430				0130			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	9.3	8.2	263	31	6.6	4.6	260	31	1.2	1.0	085	31	2.5	2.4	085	31	2.9	1.2	116	31	17.9	17.8	271
0.15 a. g.	31	11.2	9.7	256	29	11.8	8.6	260	25	10.2	6.7	082	22	9.1	6.9	079	29	8.2	2.9	121	25	21.0	20.7	273
0.3 a. m. s. l.	31	11.2	8.7	253	29	11.6	8.3	265	25	10.7	6.4	084	22	10.2	7.3	089	29	8.6	2.9	123	25	22.2	2.19	273
0.6 "	31	11.7	7.6	250	29	11.4	7.6	270	25	9.1	2.3	118	21	10.9	3.4	105	29	8.0	2.5	177	24	27.3	27.0	270
0.9 "	31	12.2	6.2	261	29	11.3	6.4	275	22	8.9	3.6	151	20	11.1	2.0	169	29	7.7	4.4	213	23	26.3	25.8	270
1.5 "	28	13.0	4.2	282	29	12.2	3.4	310	18	7.9	3.5	187	19	12.8	5.5	234	26	9.9	7.1	232	22	17.7	16.8	272
2.1 "	24	13.9	1.7	017	29	12.0	1.7	325	12	8.6	5.0	251	15	13.7	5.2	247	23	12.8	8.8	238	17	10.7	8.2	270
3.0 "	21	15.4	5.7	163	30	13.3	2.4	150	5	8.0	6.0	269	12	13.7	2.6	202	17	12.9	5.3	226	14	14.9	6.4	252
4.5 "	17	15.7	9.1	165	30	14.2	5.5	135					5	9.6	0.5	120	14	10.6	1.7	242	5	9.4	5.5	107
5.4 "	15	15.6	8.3	132	30	14.3	7.6	095	1	6.0	6.0	135	3	9.0	4.5	023	13	12.2	0.8	266	1	4.0	4.0	086
6.0 "	15	15.7	9.6	095	30	14.1	7.6	080					3	15.0	12.6	030	13	13.2	1.8	050	1	4.0	4.0	105
7.2 "	10	15.6	11.1	084	30	14.2	9.0	080					1	16.0	16.0	315	7	16.1	4.0	013	1	2.0	2.0	180
9.0 "	8	10.5	4.7	070	24	13.2	8.3	090									5	18.8	17.2	277	1	2.0	2.0	225

Station.	TIRUCHIRAPALLI								TRIVANDRUM												UDAIPUR			
	0730				1430				0130				0730				1430				0130			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	14.1	13.8	271	31	10.2	9.4	271	31	4.7	3.6	335	31	2.9	2.5	339	31	8.7	8.1	309	31	4.4	3.7	245
0.15 a. g.	31	20.9	20.2	271	31	12.3	11.2	275	31	13.6	11.9	314	31	10.8	9.2	332	29	15.1	13.8	289	31	12.6	10.3	255
0.3 a. m. s. l.	31	23.3	22.5	272	31	12.8	11.8	273	31	16.3	14.5	308	31	13.8	12.4	314	29	16.2	14.9	291				
0.6 "	31	28.4	27.5	272	31	14.0	13.1	271	31	20.8	19.1	300	29	19.3	17.2	294	28	19.2	17.9	294				
0.9 "	31	24.5	23.6	272	30	14.2	13.4	268	29	23.1	21.2	292	28	20.9	19.3	293	26	21.7	20.1	297	31	14.6	12.0	267
1.5 "	30	16.6	14.9	271	30	11.9	10.1	264	26	24.5	23.1	292	27	22.3	21.0	291	19	20.8	19.4	302	31	14.3	10.9	260
2.1 "	29	15.1	10.6	271	29	13.4	10.1	269	17	21.7	20.8	293	23	21.0	19.1	288	16	18.1	17.0	298	31	12.5	6.8	277
3.0 "	24	16.6	6.8	263	26	14.7	7.2	290	11	11.3	4.0	335	18	18.6	10.8	290	9	14.0	8.5	300	29	10.8	4.1	005
4.5 "	19	11.5	1.0	225	21	10.5	2.2	005	4	14.5	10.9	128	7	12.6	0.8	238	5	10.8	8.9	071	5	14.4	4.8	010
5.4 "	17	9.1	2.3	250	17	7.0	2.4	330	3	8.7	6.7	128	5	6.4	4.2	008	5	5.8	4.0	015				
6.0 "	13	6.8	0.7	066	16	6.1	3.6	355	1	3.0	3.0	960	5	6.8	3.9	346	5	7.0	5.9	337				
7.2 "	9	6.8	4.0	071	13	5.5	3.0	036					3	3.7	2.8	258	4	4.7	1.9	027				
9.0 "	6	9.0	7.3	062	7	10.4	9.2	071					1	9.0	9.0	090	3	8.7	5.2	040				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9·0 Km. above mean sea level

May 1956

Station	UDAIPUR								VENGURLA								VERAVAL							
	0730				1430				0130				0730				1430				0130			
in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
loc.	31	2·3	2·0	245	31	4·9	4·0	240	31	1·8	0·2	209	31	2·7	1·3	138	31	7·3	5·0	246	31	11·9	9·9	252
a. g.	31	9·8	8·2	255	31	9·4	7·4	248	28	8·1	4·0	258	31	6·9	0·3	189	30	11·2	8·4	251	31	13·9	11·3	259
a. m. s. l.									28	10·4	6·0	261	31	10·5	4·2	250	30	12·1	8·0	261	31	14·6	12·1	263
"									25	12·1	6·9	267	30	13·6	7·1	249	27	11·2	6·4	276	31	14·6	12·1	262
"	31	11·4	9·9	265	31	9·3	7·3	250	23	12·2	8·2	270	25	13·7	8·9	272	25	11·2	6·2	287	28	13·7	11·0	262
"	30	14·6	9·8	270	31	9·0	6·1	266	14	13·4	8·0	310	23	13·0	7·9	294	23	12·0	6·9	321	22	12·9	5·6	253
"	30	10·9	2·3	281	30	8·4	5·3	276	10	14·7	4·4	355	14	10·6	1·3	345	21	9·9	3·5	308	14	13·6	2·2	115
"	29	11·2	2·3	020	30	9·1	2·6	345	6	12·0	6·8	148	9	9·0	4·7	143	17	9·8	5·5	138	11	11·5	5·2	123
"	27	16·4	10·7	039	29	13·7	5·9	022	1	7·0	7·0	165	6	10·5	6·3	114	12	12·7	10·8	123	1	7·0	7·0	120
"	24	18·7	11·3	043	28	17·1	3·3	076					4	11·2	6·2	097	10	13·4	11·5	122				
"	22	20·8	11·7	031	27	20·6	11·4	028					3	18·6	18·0	071	9	15·2	12·3	103				
"	11	18·8	11·7	030	22	21·0	7·7	007					1	32·0	32·0	065	9	18·6	13·8	079				
"	2	8·0	8·0	096	18	18·6	7·8	356									7	14·9	14·2	086				

Station	VERAVAL								VISAKHAPATNAM											
	0730				1430				0130				0730				1430			
in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
loc.	31	7·2	6·5	256	31	12·5	11·2	253	31	4·7	3·7	207	31	6·3	5·6	230	31	11·7	8·6	195
a. g.	31	11·5	9·7	254	31	13·0	12·0	254	31	8·3	6·8	232	31	8·3	7·3	230	31	10·1	7·9	205
a. m. s. l.	31	12·1	10·3	256	31	14·6	13·1	259	31	10·6	9·4	241	31	10·7	9·9	240	31	9·9	8·1	216
"	31	13·4	11·0	261	31	15·4	12·9	265	30	13·3	11·6	252	31	13·0	11·7	250	31	8·3	6·5	252
"	27	13·5	10·4	261	31	14·1	10·5	270	28	13·6	10·5	257	28	13·8	12·4	265	30	8·0	6·3	273
"	22	11·8	3·6	286	28	11·4	5·7	285	27	10·8	7·9	284	26	12·5	9·8	292	28	10·0	8·3	308
"	16	14·3	2·3	049	25	11·4	2·7	298	24	8·8	6·0	314	24	9·5	6·4	326	27	11·2	8·8	321
"	9	19·9	10·6	089	24	16·1	3·2	111	21	9·7	6·7	346	19	10·1	5·5	353	26	11·7	7·3	305
"	3	12·3	11·5	095	21	16·5	8·5	104	4	7·3	5·8	048	7	7·3	4·8	070	20	11·5	7·2	302
"	2	13·5	1·6	085	20	16·7	12·3	076	1	6·0	6·0	160	7	9·7	6·0	058	17	10·9	5·9	327
"	2	14·5	2·6	345	20	19·1	15·4	080					4	11·7	11·0	087	15	11·9	5·9	355
"	2	13·5	4·8	091	18	18·3	14·5	075					1	11·0	11·0	105	13	12·2	9·0	025
"					11	14·9	12·9	083									12	11·3	8·8	045

TABLE V—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds above 9.0 Km. above mean sea level

May 1956

Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D
	AGARTALA					BAMRAULI					BHUJ					GAUHATI					JABALPUR			
	1430 hrs.					1430 hrs.					1430 hrs.					0830 hrs.*					0730 hrs.			
10.5	1	19.0	19.0	245	10.5	1	9.0	9.0	190	10.5	9	10.8	1.8	023	10.5	18	23.3	19.0	267	10.5	3	8.7	7.0	233
12.0	1	30.0	30.0	225		2030 hrs.*				12.0	2	13.5	5.7	176	12.0	14	22.9	20.5	269	12.0	3	12.0	6.4	251
	AHMEDABAD				10.5	16	25.4	13.8	295	14.1	2	10.0	8.7	093	14.1	6	24.5	20.2	280	14.1	2	17.0	8.7	058
	1430 hrs.				12.0	8	23.4	10.7	329	16.2	2	18.0	15.3	156	16.2	1	16.1	16.1	320		1430 hrs.			
10.5	6	15.3	2.5	123	14.1	2	31.0	19.1	055	18.0	1	25.0	25.0	185	10.5	1	15.0	15.0	310	10.5	5	13.2	10.4	081
12.0	4	16.3	4.1	162		BANGALORE					BIKANER					1430 hrs.				12.0	1	13.0	13.0	324
	AMAUSI					0730 hrs.					0730 hrs.					2030 hrs.*					1430 hrs.			
10.5	1	6.0	6.0	280	10.5	3	13.7	11.9	095	10.5	1	13.0	13.0	255	10.5	27	24.1	19.6	278	16.2	2	22.5	19.5	055
12.0	1	17.0	17.0	335	12.0	1	19.0	19.0	110		CHIKALTHANA				12.0	22	23.6	19.6	270	18.0	1	23.0	23.0	025
	AMBALA					1430 hrs.					0730 hrs.					1430 hrs.					1430 hrs.			
	1430 hrs.				10.5	8	16.7	16.7	094	10.5	3	11.0	5.9	085	14.1	9	29.7	25.8	281	21.0	1	32.0	32.0	091
10.5	10	40.0	34.3	293	12.0	5	18.6	18.6	100	12.0	3	13.7	10.2	063		GOPALPUR				23.0	1	48.0	48.0	081
12.0	5	32.8	30.4	296	14.1	2	31.0	29.9	090	12.0	3	14.0	14.0	120	10.5	1	21.0	21.0	070		JAGDALPUR			
14.1	2	34.0	34.0	317	16.2	1	44.0	44.0	090	14.1	1	5.0	5.0	080		1430 hrs.					0730 hrs.			
16.2	1	27.0	27.0	285		BAREILLY					1430 hrs.					1430 hrs.				10.5	6	12.7	9.7	09
18.0	1	29.0	29.0	295		0730 hrs.					1430 hrs.				10.5	6	17.0	11.1	081	12.0	6	17.7	10.4	08
20.0	1	31.0	31.0	300	10.5	1	12.0	12.0	356	10.5	1	9.0	9.0	265	12.0	5	19.2	16.3	080	14.1	2	19.5	18.9	10
	ANANTAPUR				12.0	1	1.0	1.0	036		COCHIN				14.1	2	30.5	27.8	085		1430 hrs.			
	0730 hrs.				14.1	1	4.0	4.0	100		1430 hrs.				16.2	1	29.0	29.0	055		1430 hrs.			
10.5	4	12.7	10.5	080		1430 hrs.					1430 hrs.				18.0	1	34.0	34.0	095	10.5	2	8.5	8.5	01
12.0	2	12.5	12.3	092	10.5	7	18.1	7.2	348	10.5	1	12.0	12.0	100		GORKHPUR				12.0	1	6.0	6.0	11
	1430 hrs.				12.0	4	13.5	6.7	057		DUM DUM					0730 hrs.				14.1	1	21.0	21.0	01
10.5	6	12.5	11.3	101	14.1	3	19.7	9.9	018		0830 hrs.*				10.5	1	17.0	17.0	355		JAIPUR			
12.0	1	8.0	8.0	080	16.2	2	31.0	29.7	319	10.5	29	12.3	4.0	240	12.0	1	3.0	3.0	052		0730 hrs.			
	BAIRAGARH					1430 hrs.					1430 hrs.				14.1	1	10.0	10.0	252		1430 hrs.			
	0730 hrs.				10.5	3	12.3	11.5	085	14.1	14	13.9	4.5	049	16.2	1	9.0	9.0	335	10.5	1	5.0	5.0	2
10.5	1	6.0	6.0	350	12.0	1	8.0	8.0	119	16.2	3	11.7	11.0	092	10.5	6	27.0	22.7	333	12.0	1	10.0	10.0	2
	1430 hrs.				14.1	1	12.0	12.0	050		1430 hrs.				12.0	4	25.5	22.7	333	14.1	1	5.0	5.0	3
10.5	7	14.6	6.7	002		BHAGALPUR				10.5	1	13.0	13.0	340	14.1	3	16.3	15.8	311		JHARSUGUDA			
12.0	4	10.3	8.2	267		1430 hrs.				12.0	1	19.0	19.0	355		1430 hrs.					1430 hrs.			
14.1	4	7.5	4.1	222	10.5	2	22.0	20.2	325		2030 hrs.*					GWALIOR				10.5	1	7.0	7.0	
16.2	4	8.3	7.3	103	12.0	1	16.0	16.0	280	10.5	24	11.3	6.3	256	10.5	11	20.1	12.9	308	12.0	1	9.0	9.0	
18.0	2	17.0	16.3	076		BHUBANESHWAR				12.0	23	10.3	5.3	245	12.0	8	16.9	12.2	273		JODHPUR			
	0730 hrs.				14.1	12	13.1	5.7	029	14.1	2	24.0	23.5	049	14.1	5	13.4	7.4	285		0830 hrs.*			
10.5	12	17.2	5.2	317	10.5	1	8.0	8.0	070	16.2	2	13.0	8.5	055	10.5	18	21.2	14.3			1430 hrs.			
12.0	9	20.8	13.3	280	12.0	1	17.0	17.0	050		GADAG					1430 hrs.				12.0	15	23.9	15.9	
14.1	2	11.5	5.0	280		BHUJ				10.5	3	16.3	10.8	069	10.5	1	15.0	15.0	095		0730 hrs.			
16.2	1	11.0	11.0	040	12.0	1	10.0	10.0	285	12.0	1	29.0	29.0	100	10.5	1	38.0	38.0	030	16.2	6	30.2	19.2	
	0830 hrs.*					0730 hrs.					1430 hrs.					1430 hrs.					1430 hrs.			

TABLE V—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds above 9.0 Km. above mean sea level

May 1956

n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	
JODHPUR					MINICOY					NEW DELHI					SANTACRUZ					UDAIPUR					
1430 hrs.					0730 hrs.					0830 hrs.*					0830 hrs.*					0730 hrs.					
8	21.2	10.4	283	10.5	2	10.5	9.8	114							19	11.8	8.5	090	10.5	1	11.0	11.0	235		
7	18.0	9.6	293						10.5	28	23.0	18.5	297	12.0	18	14.5	11.4	100	12.0	1	18.0	18.0	215		
3	13.6	3.2	216	10.5	1	10.0	10.0	075	12.0	26	24.6	19.0	287	14.1	11	19.5	18.5	090							
3	15.0	2.5	238						14.1	21	24.2	16.9	278	16.2	5	29.2	27.5	115							
1	10.0	10.0	130		MOHANBARI					16.2	10	17.5	9.7	316	18.0	1	59.0	59.0	120	10.5	9	19.0	8.0	296	
									18.0	3	25.0	7.5	077	20.0	1	60.0	60.0	120	12.0	2	22.5	21.0	331		
					0730 hrs.					1430 hrs.					1430 hrs.					1430 hrs.					
18	16.9	11.2	063	10.5	1	29.0	29.0	285											14.1	1	19.0	19.0	295		
17	16.2	9.5	057	12.0	1	38.0	38.0	290	10.5	14	28.9	20.2	306	10.5	4	12.3	6.1	045	16.2	1	7.0	7.0	240		
9	15.1	9.8	052	14.1	1	40.0	40.0	310	12.0	8	20.7	16.3	312	12.0	1	19.0	19.0	080	18.0	1	16.0	16.0	255		
5	19.0	11.6	016	16.2	1	9.0	9.0	350	14.1	6	18.3	15.8	297												
					1430 hrs.					2030 hrs.*					2030 hrs.*					1430 hrs.					
				10.5	1	47.0	47.0	260						10.5	21	13.6	11.0	100	10.5	4	15.3	14.1	108		
					MUSSOORIE					2030 hrs.*					13 13.2 11.7 100					3 20.3 19.0 087					
19	22.9	22.0	087						10.5	28	21.6	16.4	292	14.1	8	21.3	19.7	090							
13	31.8	30.1	084						12.0	27	20.0	16.3	281												
8	53.1	53.1	083	10.5	1	23.0	23.0	300	14.1	15	23.1	18.7	285												
4	46.3	44.3	098		1430 hrs.					15 18.0 9.0 282					TEZPUR					VERAVAL					
3	33.3	32.7	100						16.2	5	18.0	9.0	282												
				10.5	2	59.0	59.0	317						10.5	3	24.7	23.4	277	10.5	6	11.7	11.3	074		
				12.0	1	38.0	38.0	315						12.0	3	29.0	27.7	291	12.0	1	12.0	12.0	100		
				14.1	1	35.0	35.0	310						14.1	2	19.0	18.3	302							
					NAGPUR					POONA					TIRUCHIRAPALLI					VISAKHAPATNAM					
					0830 hrs.*					0730 hrs.					0730 hrs.					1430 hrs.					
11	18.0	16.5	095																						
4	25.5	25.0	092	10.5	12	9.8	5.0	073	10.5	3	17.3	16.6	085	18.0	1	15.0	15.0	135	10.5	6	9.3	6.9	046		
1	30.0	30.0	100	12.0	10	13.1	6.7	083	12.0	1	34.0	34.0	120												
1	48.0	48.0	050	14.1	6	19.3	11.7	090																	
1	62.0	62.0	100	16.2	2	17.0	15.5	077																	
				18.0	1	22.0	22.0	080																	
					1430 hrs.					1430 hrs.					1430 hrs.					1430 hrs.					
				10.5	2	19.0	18.9	044	10.5	2	13.5	9.5	091	12.0	3	14.7	12.7	059	10.5	6	14.7	12.6	086		
				12.0	1	18.0	18.0	030	12.0	1	13.0	13.0	165	14.1	2	24.0	23.5	090	12.0	3	29.7	28.8	092		
1	21.0	21.0	085						14.1	1	10.0	10.0	165		1	23.0	23.0	125	14.1	4	29.7	26.7	105		
					2030 hrs.*					1430 hrs.					1430 hrs.					1430 hrs.					
				10.5	15	12.3	7.2	062																	
5	16.8	16.3	110	12.0	12	14.6	9.7	056																	
0	4	23.0	23.0	094	14.1	5	22.4	12.8	047																
1	2	32.5	32.5	266	16.2	1	19.0	19.0	140																
2	1	50.0	50.0	075	18.0	1	28.0	28.0	090	10.5	1	14.0	14.0	055	16.2	1	62.0	62.0	080	18.0	1	52.0	52.0	100	

RADIOSONDE DATA

May 1956

During the month, observations of upper air temperature, pressure and humidity were made at 13 stations in India as given in the list below. For a detailed description of the instruments used a reference may be made to the I. M. D. Scientific Notes Nos. 112 and 113 (Volume IX).

LIST OF RADIOSONDE STATIONS IN INDIA

S.No.	Name of station	Type of instrument used	Date of starting	Hours of routine observations in GMT during the month	Remarks
1.	Allahabad	Clock type	1st October 1954	03 and 15	
2.	Bombay	Clock type	7th September 1954	03 and 15	
3.	Calcutta	Clock type	13th December 1946	03 and 15	Fan type used from 13th December, 1946 to 30th November 1947.
4.	Gauhati	Clock type	22nd July 1955	03 and 15	
5.	Jodhpur	Clock type	17th April 1946	03 and 15	
6.	Madras	Fan type	29th June 1946	03 and 15	
7.	Nagpur	Fan type	1st October 1946	03 and 15	
8.	New Delhi	Clock type	3rd December 1943	03 and 15	
9.	Poona	Fan type	24th April 1944	15	
10.	Port Blair	Fan type	4th December 1949	15	
11.	Trivandrum	Fan type	1st July 1947	15	
12.	Veraval	Fan type	3rd October 1944	15	
13.	Visakhapatnam	Fan type	8th December 1946	15	

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(a) From ascents at 03 hrs. G. M. T.

May 1956

Standard pressure surface mbs.	NAGPUR Surf. Pr. (967 mb.)						NEW DELHI 976 mb.									
	No. of obs.	Ht. gpm.	Temperature °A				No. of Obs	Ht. gpm.	Temperature °A							
			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point				
Surface	27	311	305.2	312	299	290.9	31	210	305.0	309	301	289.6				
1000	27	10	...	...	...	...	31	-13	...	...	..	..
900	27	951	300.1	305	296	284.9	31	931	302.7	307	297	283.8				
850	27	1454	297.6	301	291	281.7	31	1437	300.5	305	296	280.5				
800	27	1982	294.3	299	291	278.6	31	1971	296.7	300	292	278.4				
700	27	3124	287.2	295	283	272.6	31	3116	287.2	292	283	272.4				
600	25	4398	276.9	281	275	268.1	31	4392	277.2	287	271	263.5				
500	23	5862	269.7	273	265	...	31	5853	269.1	278	260	...				
400	20	7608	260.9	264	257	...	31	7581	259.2	267	254	...				
300	16	9736	246.8	251	241	...	30	9708	245.3	255	238	...				
250	13	11042	237.6	240	233	...	28	11003	236.5	247	229	...				
200	12	12564	225.8	232	220	...	27	12526	227.0	238	218	...				
175	10	13497	220.5	229	215	...	24	13388	220.4	234	210	...				
150	10	14415	212.8	217	208	...	22	14386	214.0	229	206	...				
125	5	15608	209.6	213	205	...	15	15560	209.5	227	199	...				
100							10	16940	206.7	232	196	...				
80							5	18343	205.8	231	190	...				

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(b) From ascents at 15 hrs. G. M. T.

May 1956

Standard pressure surface mb.	VISAKHAPATNAM Surf. Pr. (994 mb.)													
	No. of obs.	Ht. gpm.	Temperature °A											
			Mean	Max.	Min.	Dew point								
Surface	27	48	303.1	306	301	298.0								
1000	27	1	...	...	...	...				
900	27	936	299.9	305	292	290.3								
850	27	1438	297.1	303	291	287.5								
800	27	1965	293.4	299	289	284.9								
760	27	3102	285.8	290	280	277.7								
600	27	4377	277.2	282	273	271.0								
500	27	5836	268.9	275	263	...								
400	27	7566	259.6	266	255	...								
300	23	9696	245.4	251	241	...								
250	22	10980	235.6	243	230	...								
200	21	12483	223.9	234	218	...								
175	20	13341	217.5	225	211	...								
150	20	14328	210.7	220	203	...								
125	14	15440	204.2	212	199	...								
100	13	16799	196.5	204	187	...								
80	8	18094	193.9	201	186	...								

NOTE.—Number of observations refer to those of dynamic height.

Means are not worked out for temperature and dew point for the 1000 mb. surface and for dew point for standard pressure surfaces with temperature less than 273°A.

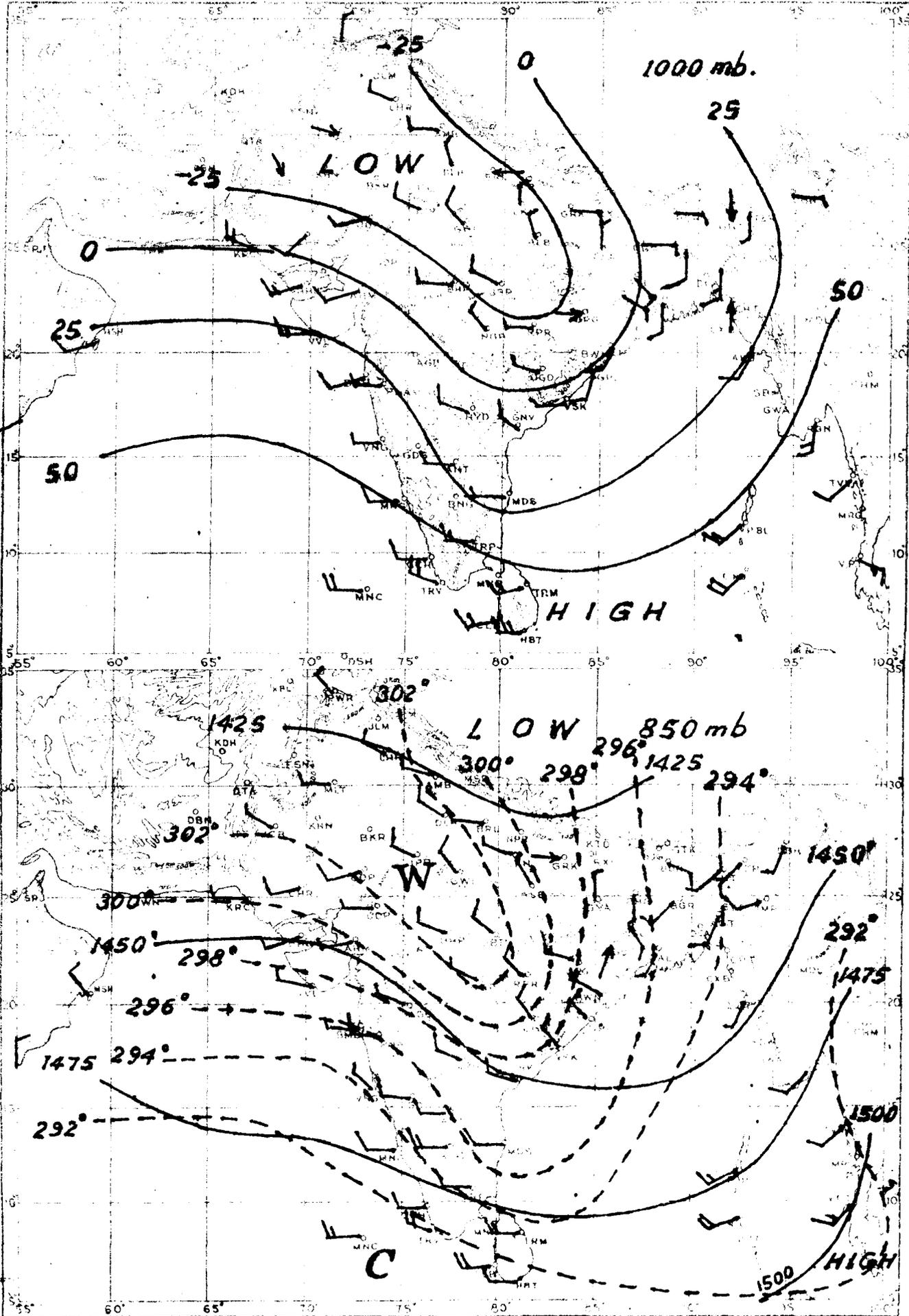
Means are not worked out for less than five observations at standard pressure surfaces.

MONTHLY MEAN CONSTANT PRESSURE CHARTS

1 Mei 1956

MAY 1956

Plate I



RESULTANT WIND ——— 5 Knots ——— 10 Knots ——— 20 Knots
 - - - - - Isotherms in degrees absolute. ——— Contour interval 100 feet at metres

DD60/319/12/58

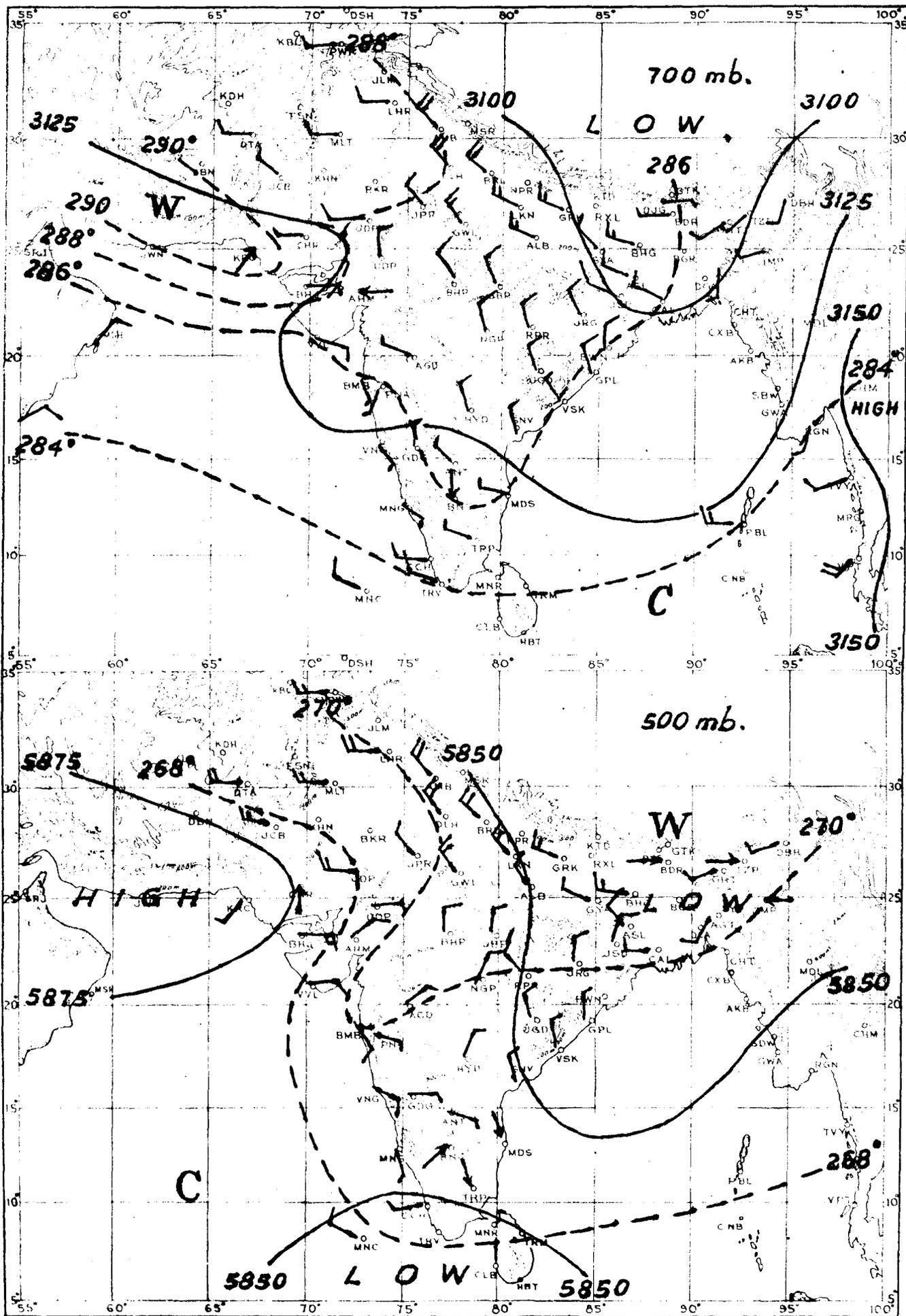
12/58 947

MONTHLY MEAN CONSTANT PRESSURE CHARTS

MAY 1956

Plate II

I. Met. D.



RESULTANT WIND — 5 Knots, — 10 Knots, — 50 Knots.

--- Isotherms in degrees absolute.

— Contours in geopotential metres.

DDO/310/2/158

G.P.P. ROOM 4, 1957.

INDIA WEATHER REVIEW, 1956

Monthly Weather Report

June

Published by authority of the Government of India

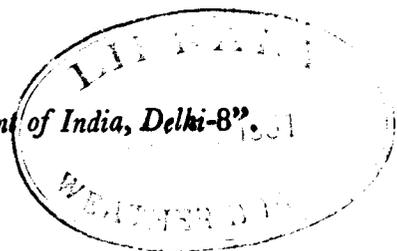
Chief features—

(i) Steady advance of the monsoon into most of the remaining parts of the country (ii) one cyclonic storm and three depressions from the Bay of Bengal and (iii) good rainfall over the country outside Gujarat, Rajasthan, Madhya Bharat and Vindhya Pradesh.

The severe cyclonic storm in the northwest Bay of Bengal, which hit the coast near Contal during the night of 31st May, weakened slightly and lay on the morning of 1st June as a cyclonic storm of moderate intensity with its centre about 50 miles to the westsouthwest of Calcutta. Recurring northeastwards and weakening further into a deep depression, it was centred near Krishnagar on the morning of 2nd. Moving northeast and weakening gradually, it broke up over the hills of lower Assam by the 6th. Under the influence of the storm, the monsoon was strong to vigorous in Gangetic West Bengal from the 2nd to 4th and in Assam from the 2nd to 6th. Calcutta reported 5" of rain on the 2nd and 6" on the 3rd; Cherrapunji 10" on the 3rd, 11" on the 4th, 37" on the 5th and 10" on the 6th and Shillong 10" and Gauhati 8" on the 5th. Agartala recorded 5" on the 4th and Tangla and Majbat 5" each on the 5th and 6th respectively. The heavy rains were reported to have caused severe floods in the states of Assam, Manipur and Tripura, the loss of life and property being particularly heavy in Agartala. The storm was also responsible for the extension of the monsoon into Chota Nagpur on the 1st, into Bihar on the 4th and into east Uttar Pradesh on the 5th.

With the movement of an easterly wave from central Burma, conditions became unsettled in the north Bay of Bengal on the 8th and a shallow depression formed in the northwest angle of Bay on the 9th with its centre close to coast between Balasore and Contai. It passed inland by the same evening and lay as a low pressure area over Chota Nagpur and neighbourhood on the 10th. Moving slowly northwards, it became unimportant on the 12th. Under its influence the monsoon strengthened over Orissa on the 8th and 9th and over east Uttar Pradesh and Bihar on the 10th and 11th. Balasore recorded 9" of rain on the 8th and Jharsuguda 6" on the 9th. Some parts of Bihar and Orissa were reported to have experienced floods due to heavy rain. After the filling up of the depression the activity of the Bay branch of the monsoon decreased and became practically confined to Assam by the 13th.

The Arabian Sea branch of the monsoon, which had established itself on the west coast by the end of May continued to be active till the 6th June, after which there was a lull in its activity. The lull was broken on the 14th, when a revival of monsoon took place along the west coast and was accompanied by widespread thunderstorm activity over the south Peninsula. According to press reports, a violent thunderstorm blew over Trichur and neighbouring villages in Travancore-Cochin on the 14th June and caused considerable damage to houses, trees and crops. Soon after the revival of the monsoon along the west coast, the Bay branch also strengthened and the eastern end of the axis of the monsoon trough which had earlier moved to the foot of the Himalayas shifted slightly southwards. Consequently, the activity of this branch of the monsoon extended to other parts of northeast India during the third week of the month. Cherrapunji recorded an exceptionally heavy fall of 43" during the 48 hours ending at 0830 hrs. I. S. T. on the 15th. Vigorous monsoon conditions also prevailed in the south Konkan on the 18th June, when Vengurla reported 8" of rain and Ratnagiri, Honavar, Devgad and Karwar 5" each. By the next day, the monsoon also became active over



Hyderabad, Madhya Pradesh and Vindhya Pradesh, where it had penetrated early in the season only as a feeble current. The heavy rains in Assam were reported to have caused considerable damage to crops besides considerable dislocation of rail and road transport and virtual isolation of the town of Imphal. As a result of the heavy rains in the eastern Himalayas, the rivers in north Bihar were also reported to have burst their banks inundating a large area. In association with the passage of an active westerly wave across the Punjab (India), there was widespread rain on the 20th in Jammu and Kashmir, the Punjab (I) and in and near the Kumaon hills.

A general strengthening of the monsoon took place in the fourth week of the month when it extended further into Gujarat, Saurashtra and Kutch, south Rajasthan and north Madhya Bharat. This was associated with two depressions, one from the Bay of Bengal, which moved across the country to south Madhya Bharat between the 25th and 27th and the other, a short-lived one, which formed off the Kathiawar coast on the 26th but persisted as a diffuse "low" over the north Arabian Sea till the end of the month. Under the influence of an easterly wave which moved northwestwards from the southeast Bay, conditions became unsettled in the west central Bay on the 24th morning and a depression formed by the same evening with its centre near Lat. 15° N and Long. $87\frac{1}{2}^{\circ}$ E. The depression became deep and crossed coast near Calingapatnam on the night of 25th-26th. Next morning, it lay as a shallow depression with its centre about 30 miles to the south of Nagpur. By the evening of 26th, it moved as a diffuse "low" into south Madhya Bharat and became unimportant thereafter. In association with this depression, the Bay monsoon was diverted towards the central parts of the country, giving relief to Assam, Sub-Himalayan west Bengal and Bihar from the heavy rains that these parts had been experiencing for more than a week. Simultaneously with this depression, a well-marked trough of low pressure appeared off the north Konkan and the south Kathiawar coasts on the 25th. This trough concentrated into a shallow depression centred about 50 miles to the southwest of Veraval on the 26th morning. Moving northwestwards, it lay about 80 miles to the west of Dwarka on the 27th morning. It weakened by the evening of the same day, but persisted as a diffuse "low" over the north Arabian Sea till the end of the month. Under its influence, monsoon was vigorous in the Konkan on the 26th, when Ratnagiri reported 7" of rain, Vengurla 5" and Honavar 4". The monsoon also extended to Gujarat, Saurashtra and Kutch, south Rajasthan and north Madhya Bharat on the same day. Kandla in Kutch reported 4" on the 26th and Dwarka 9" on the 30th. Some other noteworthy heavy falls during this period were : Kozhikode 9" and Bombay (Santacruz) and Ratnagiri 7" each on the 30th.

The rainfall for the month was in large excess in Orissa, Bihar and Tamilnad, in moderate excess in West Bengal, Jammu and Kashmir, east Madhya Pradesh, coastal Andhradesa and Mysore and in slight excess in Assam, Chota Nagpur, west Madhya Pradesh, the Konkan, south Hyderabad and Rayalaseema. It was in slight defect in west Uttar Pradesh and Deccan (Desh), in moderate defect in the Bay Islands, east Rajasthan, Madhya Bharat, Vindhya Pradesh and Gujarat and in large defect in west Rajasthan. The rainfall was normal over the rest of the country.

The mean maximum temperature was normal in the Bay Islands, Assam, west Uttar Pradesh northwest India, Saurashtra and Kutch, the Konkan, Malabar and south Kanara and Travancore-Cochin and below normal over the rest of the country.

The mean minimum temperature was above normal in west Rajasthan, below normal in Orissa and east Madhya Pradesh and normal elsewhere.

The mean relative humidity in the morning was in excess in north-east India outside Assam, in Uttar Pradesh, the Punjab (I), Vindhya Pradesh, Madhya Pradesh, north Hyderabad and Rayalaseema and normal elsewhere.

The mean cloud amount in the morning was in excess in Bihar, Chota Nagpur, Orissa, east Uttar Pradesh, northwest India outside west Rajasthan, in Madhya Bharat, Vindhya Pradesh, Madhya Pradesh, Hyderabad, Rayalaseema and Tamilnad and normal elsewhere over the country.

Table I contains the divisional and sub-divisional means of rainfall, temperature, humidity and cloud amount for the 13 chief political divisions and the 28 sub-divisions. The stations whose observations are used for preparing these means are given in the subsequent tables.

The highest maximum temperature given for any station in the accompanying tables is that recorded within the 24 hours ending at 0830 hrs. I. S. T. of the date noted in the succeeding column. Similarly the heaviest fall in 24 hours for any station denotes the amount recorded during the 24 hours ending at 0830 hrs. I. S. T. of the date given in the succeeding column.

POONA 5,

Dated the 3rd January, 1958.

S. S. LAL,

for Director General of Observatories.

Errata to Monthly Weather Report for June 1956

Table	Page No.	Station	Hour	Column	For	Read	
	251	4th line from beginning for Contal - Read Contal.					
II	254	Malda	-	11	5.19	15.19	
		Berhampore	-	11	1.96	11.96	
	256	Srinagar	-	3	-0.1	-1.0	
		Kargil	-	1	Kargil	Kargil (R)	
		Foot note	-	-	(c) mean of 6 days	(c) mean of 26 days	
	258	Cuddapah	-	19	0.8	-0.8	
		Kurnool	-	19	not clear	+2.8	
		Pamban	-	7	not clear	-1.3	
		Coimbatore	-	19	not clear	+4.6	
		Salem	-	16	-3.6	+3.6	
		Madras (Nungambakkam)	-	2	not clear	95.5	
		Mangalore	-	11	not clear	38.08	
	259	Kohima	-	10	7.450	7.45*	
		Mawsynram	-	14	10	20	
		Darjiling (Raj Bhawan)	-	18	18	13	
		Darjiling (Raj Bhawan)	-	24	19	29	
		Mukteshwar (Kumaon)	-	19	-5.5	5.2	
		Mukteshwar (Kumaon)	-	20	21	12	
		Mussooroe	-	3	-3.3	-3.8	
		Simla	-	17	8.1	1.8	
		Dharampur	-	12	+1.41	+1.14	
		Abu	-	2	81.1	81.4	
		Mahabaloshwar	-	12	-11.58	-11.53	
		Nandi Hills	-	19	Blank	dash	
	260	Punasa	-	7	Blank	dash	
	261	Taplejung (February month)	-	18-29	Blank	dashes	
		Foot note	-	-	(p) mede of 15 days	(p) mean of 15 days	
III	263	Kondul	-	1	Kondul	Kondul	
	264	Dum Dum	0530	15	6.9	7.8	
	265	Sambalpur	1730	10	32.7	32.6	
	266	Heading	-	28	Blank	Variable	
		Ranchi	-	1	Rancho	Ranchi	
		Patna (aerodrome)	1130	28	Blank	0	
		Gaya	0530	26	8	3	
		Gaya	1130	25	8	3	
		Gaya	1130	26	7	3	
		Gaya	1730	25	8	3	
		Bhagalpur	1130	5	99.0	995.0	
		Gorakhpur (P.B.O.)	-	1	Gorakhyur (P.B.O.)	Gorakhpur (P.B.O.)	
	268	Rajasthan West, Sriganganagar	-	1	Not clear	Rajasthan West Sriganganagar	
	269	Jodhpur	0230	15	12.4	12.5	
	270	Nowgong	0830	15	6.7	5.7	
	271	Jabalpur	2330	10	2.2	27.2	
	272	Bhuj	1730	5	96.83	986.3	
		Bhuj (P.B.O.)	2330	7	88.7	83.7	

Table No.	Page No.	Station	Hour	Column	For	Read
III	272	Vcraval	0230	25	Blank	2
(contd.)	273	Harnai	1730	7	81.0	81.9
		Karwar	0830	5	1006.4	1006.2
		Karwar	0830	6	-0.4	-0.6
		Deolali	0830	21	Blank	1
	275	Masulipatam	0230	9	76.3	76.8
	277	Trivandrum	1130	9	Not clear	74.0
		Trivandrum	2330	20	Blank	2
		Trivandrum	2330	21	Blank	0
		Trivandrum(aerodrome)	0830	19	Blank	7
		Trivandrum(aerodrome)	0830	17	Blank	2
		Trivandrum(aerodrome)	0830	18	Blank	26
		Aijal	-	1	830	0830
		Kohima	0830	16-23	Not clear	0,0,30,13,1, 2,2,5
		Kohima	1730	16-23	Not clear	0,0,28,8,1,1, 1,2
		Shillong	0830	18-24	Not clear	17,1,2,1,4,3,
		Shillong	1730	20-23	Not clear	0,1,2,1
		Badrinath	-	1	Badrinath †	Badrinath R
		Foot note	-	-	Blank	R = Register not received
		Simla	0830	6	0.9	-0.9
	279	Foot note	-	-	* Temporary	Temporarily
		Heading	-	-	Hydrometeo- rologica,	Hydrometeoro- logical
	280	Taplejung (April)	0830	15	.1	0.1
	283	Against Amausi below Col. date of opening for 20th November 195 - read 20th November 1950.				
		Against Minicoy, Mohanbari, Nagpur, Delhi col. approximate time of flights(IST) for 130 - read 0130.				

Table No.	Page No.	Station	Ht. in km.	Hour	Column	For	Read
IV	288	Gadag	2.1	0130	v	14.1	14.0
		Dum Dum	7.2	0830*	V	21.5	12.5
	289	Gauhati	7.2	0830*	D	1.7	157
	293	New Delhi	1.5	2030*	n	22	29
		New Delhi	9.0	0830*	D	225	295
	294	Raipur	1.5	0730	n	22	24
		Santacruz	2.1	0830*	n	Not clear	28
	295	Tiruchirapalli	Surface	1430	D	275	270

Division and Station.	Air temperature in °F.								Rainfall in inches.						No. of rainy days (0.10" or more).		Wind speed miles per hour.				Weather phenomena—No. of days with.								
	Mean maximum.	Departure from normal.	Highest.	Date.	Mean minimum.	Departure from normal.	Lowest.	Date.	Total fall during 0830-1730 hours.	Total fall in 24 hours.	Departure from normal.	Heaviest fall in 24 hours.	Date.	Total in the month.	Departure from normal.	Mean between 0830-1730 hours.	Mean 24 hours.	Departure from normal.	Precipitation (0.1" or more.)	Snow or sleet.	Hail.	Thunder heard.	Fog.	Dust-storm.	Ground frost.	Gale.	Squall.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		
APRIL—Contd.																													
Hydrometeorological Observatories—																													
Kosi Catchment—Contd.																													
Chautara	81.8	..	89	21	61.8	..	55	1,6	..	3.46	..	1.15	1	6	7
Okhaldhunga	74.3	..	80	4 days	56.6	..	50	1,5	0.12	2.21	..	1.08	3	6	..	5.3	4.1	..	11	0	0	7	2	0	0	0	0	0	
Barakshetra	94.6	..	102	19	72.8	..	67	14	0.02	1.70	..	1.08	30	3	..	7.9	5.2	..	5	0	0	5	0	0	0	0	0	0	
Taplejung	73.1	..	80	20,21	56.1	..	50	7	1.63	4.92	..	1.04	10	9	..	2.1	1.4	..	16	0	0	9	5	1	0	0	0	0	
Tapkethok	76.5	..	82	4 days	51.8	..	47	11,12	..	3.04	..	0.59	18	10	..	..	..	..	12	..	..	..	..	..	..	..	..	..
Wallangchung Gola	49.4	..	52	26,27,28	34.6	..	31	13	..	1.55	..	0.29	3,12	10	..	..	..	..	10	..	..	..	..	..	..	..	..	..
Bhojpur	74.5	..	82	18,20	60.0	..	55	1,4,24	0.39	2.44	..	0.95	26	8	..	..	..	..	9	..	..	..	..	..	..	..	..	..
Nepal—																													
Gandak Catchment																													
Gorkha†																													
MAY																													
Hydrometeorological Observatories—																													
Kosi Catchment																													
Katmandu	83.5	..	89	3	65.3	..	56	20	2.13	9.25	..	2.14	25	10	..	2.0	1.0	..	15	0	3	14	0	0	0	0	0	0	
Chautara	81.4	..	86	5,24,25	65.1	..	57	20	..	7.13	..	2.05	25	10	..	..	..	..	10	..	..	..	..	..	..	..	..	..
Okhaldhunga	75.5	..	82	10	60.0	..	55	20	1.45	8.96	..	2.75	12	10	..	2.4	2.2	..	16	0	0	14	3	0	0	0	0	0	
Barakshetra	91.6	..	97	25	76.2	..	72	21	0.06	8.75	..	2.04	25	11	..	6.0	4.3	..	15	0	0	5	0	0	0	0	0	0	
Taplejung	75.6	..	80	25	62.4	..	56	20	0.72	5.14	..	0.91	16	15	..	2.2	1.3	..	24	0	0	10	6	0	0	0	0	0	
Tapkethok	85.1	..	90	14,22,23	59.5	..	53	1,4	..	13.47	..	2.22	20	19	..	..	..	..	21	..	..	..	..	..	..	..	..	..
Wallangchung Gola	53.5	..	56	18	37.6	..	36	5 days	..	1.96	..	0.49	5	8	..	..	..	..	9	..	..	..	..	..	..	..	..	..
Bhojpur	75.0	..	79	4 days	63.2	..	59	25	0.88	4.51	..	1.28	2	7	..	..	..	..	10	..	..	..	..	..	..	..	..	..
Nepal—																													
Gandak Catchment																													
Gorkha†																													
JUNE																													
Hydrometeorological Observatories—																													
Kosi Catchment																													
Katmandu	80.2	..	84	12,14	67.1	..	64	9	2.42	13.11	..	1.66	23	20	..	1.3	0.6	..	25	0	0	4	0	0	0	0	0	0	
Chautara	77.9	..	83	9	65.6	..	63	5	..	17.16	..	3.89	17	19	..	..	..	..	24	..	..	..	..	..	..	..	..	..
Okhaldhunga	73.4	..	81	9	60.9	..	58	5	2.92	14.92	..	1.57	17	21	..	1.2	3.9	..	28	0	0	5	23	0	0	0	0	0	
Barakshetra	87.8	..	95	1	75.5	..	74	5 days	10.35	27.92	..	5.97	30	22	..	4.8	2.6	..	25	0	0	6	0	0	0	0	0	0	
Taplejung	75.0	..	79	1	63.5 ^(b)	..	61	4	3.35	13.80	..	2.41	17	22	..	2.5	1.3	..	24	0	0	1	24	0	0	0	0	0	
Tapkethok	86.9	..	89	4 days	63.5	..	62	8,16	..	15.51	..	1.19	9	16	..	..	..	..	17	..	..	..	..	..	..	..	..	..
Wallangchung Gola	56.0	..	60	24	39.8	..	34	8,11	..	6.00	..	0.48	21	23	..	..	..	..	24	..	..	..	..	..	..	..	..	..
Bhojpur	74.2	..	78	1,2,3	63.7 ^(b)	..	62	4 days	2.57	11.80	..	1.77	22	13	..	..	..	..	14	..	..	..	..	..	..	..	..	..
Nepal—																													
Gandak Catchment																													
Gorkha	79.5 ^(a)	..	85	9	69.5 ^(b)	..	65	16	..	19.85	..	3.98	17	18	..	..	..	..	23	..	..	..	..	..	..	..	..	..

†Data not available.

(a)Mean of 30 days.

(b)Mean of 29 days.

TABLE III—SUMMARY OF OBSERVATIONS AT FIXED HOURS—JUNE, 1956

Table with columns for Division and Station, Hour of observation, Mean pressure, Mean temperature, Cloud amount, Wind speed, and No. of observations. Includes stations like Assam (Gauhati, Goalpara, Dhubri, etc.), West Bengal (Dum Dum, Calcutta, Barrackpore, etc.), and Suri.

(b) Mean of 29 days.

(c) Mean of 28 days.

Table with columns: Division and Station, Hour of observation I. S. T., Height of barometer, Mean pressure in millibars, Mean temperature in °F., Vapour pressure in mb., Relative humidity %, Departure from normal., Cloud amount (Oktas), Mean wind speed, and No. of observations. Rows include stations like Madhya Bharat, Sheopor Kalan, Guna, Rajgarh, Neemuch, Ratlam, Alrajpur, Indore, Bhopal, Vidhya Pradesh, Umaria, Madhya Pradesh, Pendra, Raigarh, Ambikapur, Champa, Raipur, and Kanber.

MONTHLY MEANS OF UPPER WINDS, JUNE 1956

During the month, observations of velocity and direction of upper winds were made at 52 stations in India. Out of these, at 43 stations all the observations were taken by means of pilot balloons and at 9 stations some observations were made by means of pilot balloons while the other observations by the radiowind method. Particulars of the stations, their co-ordinates and the approximate times of the regular pilot balloon and rawin ascents at each station are given in the table below. All radiowind ascents have been indicated by means of an asterisk (*) against the scheduled hours.

Data from ascents made at the scheduled time or within two hours on either side of the scheduled times of regular observations have been used for averaging.

Data up to 9.0 km. a.m.s.l. are given under Table IV and data above 9.0 km. a.m.s.l. under Table V.

In Tables IV and V :

n—represents the number of observations,

V—represents the mean wind speed in knots irrespective of direction,

v—represents the resultant mean velocity in knots,

D—represents the direction of the resultant mean wind in degrees East of North.

Mean and resultant winds are given in this publication for the following heights :—

Surface, 0.15 km.a.g., 0.3, 0.6, 0.9, 1.5, 2.1, 3.0, 4.5, 5.4, 6.0, 7.2, 9.0, 10.5, 12.0, 14.1, 16.2, 18.0, 20.0, 23.0, 26.0, 30.0 and 35.0 km. a.m.s.l. Of these the levels 1.5, 3.0, 5.4, 7.2, 9.0, 12.0, 14.1 and 16.2 km. a.m.s.l. are considered as the best approximations to the standard pressure levels 850, 700, 500, 400, 300, 200, 150 and 100 mb. respectively.

PARTICULARS OF PILOT BALLOON AND RAWIN STATIONS IN INDIA

Station	Lat. N	Long. E	Height of Anemometer head a.m.s.l. in metres	Date of opening	Approximate times of flight (IST)		
Agartala	23°53'	91°15'	17	28th November, 1951	0130	0730	1430
Ahmedabad	23°04'	72°38'	61	19th May, 1928	0130	0730	1430
Amausi	26°45'	80°53'	126	20th November, 195	0130	0730	1430
Ambala	30°23'	76°46'	282	1st April, 1941	0130	0730	1430
Anantapur	14°41'	77°37'	364	12th February, 1946		0730	1430
Asansol	23°41'	86°59'	126	29th May, 1942	0130	0730	1430
Baghdogra	26°38'	88°19'	138	7th June, 1953		0730	1430
Bairagarh	23°17'	77°21'	524	26th February, 1943	0130	0730	1430
Bamrauli	25°27'	81°44'	103	28th February, 1930	0130	0830*	1430 2030*
Bangalore	12°58'	77°35'	936	19th May, 1915	0130	0730	1430
Barcilly	28°22'	79°24'	180	12th January, 1943		0730	1430
Begumpet	17°27'	78°28'	542	1st September, 1929	0130	0730	1430
Bhagalpur	25°14'	86°57'	60	19th May, 1950		0730	1430
Bhubaneswar	20°15'	85°50'	45	5th December, 1942	0130	0730	1430
Bhuj	23°15'	69°48'	111	14th September, 1937	0130	0730	1430
Bikaner	28°00'	73°18'	228	18th October, 1945	0130	0730	1430
Chikalthana	19°51'	75°24'	583	7th October, 1951	0130	0730	1430
Cochin†	09°58'	76°14'	3	16th March, 1942	0130	0730	1430
Darjeeling	27°03'	88°16'	2115	21st May, 1956		0730	1430
Dum Dum	22°39'	88°27'	11	14th May, 1921	0130	0830*	1430 2030*
Gadag	15°25'	75°38'	650	3rd May, 1943	0130	0730	1430
Gauhati	26°05'	91°43'	55	12th March, 1955	0150	0830*	1430 2030*
Gaya	24°45'	84°57'	113	19th March, 1937	0130	0730	1430
Gopalpur	19°16'	84°53'	24	15th February, 1945	0130	0730	1430
Gorakhpur	26°45'	83°22'	83	5th January, 1943		0730	1430
Gwalior	26°14'	78°15'	211	7th May, 1938	0130	0730	1430
Imphal	24°51'	93°58'	798	8th March, 1952		0730	1430
Jabalpur	23°10'	79°57'	402	30th July, 1928	0130	0730	1430
Jagdalpur	19°05'	82°02'	561	25th March, 1948	0130	0730	1430
Jaipur	26°49'	75°48'	387	6th June, 1953		0730	1430
Jamshedpur	22°49'	86°11'	144	23rd July, 1942		0730	1430
Jharsuguda	21°55'	84°05'	234	1st May, 1944	0130	0730	1430
Jodhpur	26°18'	73°01'	228	15th October, 1934	0130	0830*	1430 2030*
Madras	13°00'	80°11'	29	8th April, 1926	0130	0830*	1430 2030*
Mangalore	12°52'	74°51'	40	4th June, 1928	130	0730	1430
Masulipnatam	16°11'	81°08'	9	8th April, 1942	0130	0730	1430
Minicoy	08°18'	73°00'	14	14th April, 1941	130	0730	1430
Mohanbari	27°29'	95°01'	110	1st June, 1948	130	0730	1430
Mussoorie	30°27'	78°05'	2050	3rd November, 1955		0730	1430
Nagpur	21°09'	79°07'	316	23rd April, 1943	130	0830*	1430 2030*
New Delhi	28°35'	77°12'	227	20th October, 1936	130	0830*	1430 2030*
Poona	18°32'	73°51'	560	5th January, 1925	0130	0730	1430 2030*
Port Blair	11°40'	92°43'	92	29th October, 1945	0130	0730	1430
Raipur	21°14'	81°39'	308	15th July, 1944	0130	0730	1430
Santacruz	19°05'	72°53'	12	14th May, 1933	0130	0830*	1430 2030*
Tezpur	26°37'	92°47'	78	12th August, 1932	0130	0730	1430
Tiruchirapalli	10°46'	78°43'	95	22nd June, 1936	0130	0730	1430
Trivandrum	08°29'	76°57'	72	8th December, 1928	0130	0730	1430
Udaipur	24°35'	73°42'	587	24th June, 1947	0130	0730	1430
Vengurla	15°52'	73°38'	8	22nd November, 1941	0130	0730	1430
Veraval	20°54'	70°22'	16	13th October, 1941	0130	0730	1430
Visakhapatnam	17°43'	83°14'	9	24th September, 1928	0130	0730	1430

*Radiowind ascents.

†Naval Meteorological Office.

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

June 1956

Station	AGARTALA												AHMEDABAD															
	0130				0730				1430				0130				0730				1430							
Time in I. S. T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	30	7.0	6.1	154	30	7.9	6.8	158	30	7.4	6.0	185	30	8.3	7.7	203	30	6.2	5.1	202	30	9.0	7.1					
0.15 a. g. . .	22	15.3	13.8	178	21	13.9	12.7	158	24	12.6	15.4	182	29	14.1	13.2	223	30	10.8	8.8	215	30	12.0	9.1					
0.3 a.m.s.l. . .	22	17.9	16.3	182	21	17.0	15.4	168	24	13.9	12.5	187	29	16.2	15.3	224	30	12.0	10.3	221	30	12.1	9.5					
0.6 „ . . .	18	19.3	17.7	187	17	19.1	17.7	174	22	16.1	15.2	198	29	19.0	17.9	236	30	14.6	13.1	235	28	11.0	8.6					
0.9 „ . . .	15	19.8	17.7	195	16	19.7	16.5	181	19	17.2	15.4	198	29	18.8	17.9	241	28	15.0	13.0	243	27	10.6	8.9					
1.5 „ . . .	15	16.0	14.6	203	15	18.2	14.9	179	17	18.9	16.0	194	16	14.0	12.6	235	15	14.5	12.4	231	16	11.0	8.5					
2.1 „ . . .	11	14.7	13.3	213	11	16.0	12.4	177	14	15.6	11.7	190	6	8.5	3.4	141	6	12.7	7.8	189	10	15.1	14.1					
3.0 „ . . .	6	11.0	10.7	203	9	14.9	12.6	187	11	17.0	14.1	183					2	15.0	14.1	098	2	14.5	14.3					
4.5 „ . . .	1	6.0	6.0	205					6	14.0	9.0	186																
5.4 „ . . .	1	12.0	12.0	185					5	16.0	9.1	193																
6.0 „ . . .									4	13.0	11.1	144																
7.2 „ . . .									2	5.5	4.5	101																
9.0 „ . . .									1	17.0	17.0	090																

Station	AMAUSI												AMBALA															
	0130				0730				1430				0130				0730				1430							
Time in I. S. T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	30	7.1	2.4	185	30	6.6	3.5	122	30	7.3	2.3	068	30	7.2	4.6	100	30	7.3	6.4	114	30	6.8	1.3					
0.15 a. g. . .	29	14.2	7.4	139	29	9.8	3.6	124	29	8.7	4.0	076	30	17.8	8.9	106	30	13.3	10.3	119	28	12.0	1.1					
0.3 a.m.s.l. . .	29	14.9	7.7	142	29	10.3	2.8	132	29	9.0	4.3	077	30	8.5	5.0	098	30	8.1	6.6	112	28	7.5	0.9					
0.6 „ . . .	29	16.0	7.5	158	29	14.6	2.2	228	29	9.0	3.8	083	30	19.2	8.9	119	30	15.5	9.6	128	28	12.7	0.9					
0.9 „ . . .	29	17.2	6.5	193	28	16.0	4.6	270	29	8.7	2.5	090	30	17.4	4.6	121	30	14.3	5.6	151	28	10.9	2.2					
1.5 „ . . .	27	13.5	5.0	254	25	16.9	10.7	301	29	13.2	3.2	053	30	13.0	4.4	293	30	13.2	3.2	294	29	12.0	5.5					
2.1 „ . . .	24	15.0	6.8	298	23	16.8	10.9	308	28	16.8	9.1	317	28	13.2	8.4	297	28	13.2	9.7	313	26	12.7	8.2					
3.0 „ . . .	13	16.5	12.5	319	17	16.6	13.7	324	21	19.6	16.2	312	20	16.1	13.8	300	22	15.5	12.6	304	21	15.8	9.9					
4.5 „ . . .					7	10.9	8.7	335	6	20.7	15.3	302	4	11.3	10.5	333	7	18.7	15.7	301	17	16.4	11.7					
5.4 „ . . .					2	13.0	12.9	282	2	7.5	7.1	314	2	18.0	16.3	325	2	26.5	22.0	299	17	18.5	14.6					
6.0 „ . . .					1	11.0	11.0	325	1	2.0	2.0	160	2	13.0	11.1	294	1	29.0	29.0	255	16	19.5	16.4					
7.2 „ . . .																					16	21.6	18.5					
9.0 „ . . .																					8	21.7	19.4					

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

June 1956

Station	ANANTAPUR								ASANSOL								BAGHDOGRA															
	0730				1430				0130				0730				1430				0730											
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D				
Height in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	7.2	6.8	265	30	11.8	9.9	267	30	4.7	2.6	157	30	5.3	1.9	159	30	5.7	1.1	114	30	5.7	4.9	072								
15 a. g.	30	13.2	13.1	256	30	16.6	15.7	267	26	12.6	6.0	179	25	11.2	3.0	167	29	11.6	2.4	150	22	10.7	8.5	071								
3 a.m.s.l.									26	13.0	5.6	184	25	11.8	3.1	199	29	9.6	2.3	145	22	10.7	9.6	076								
6 "	30	15.8	15.5	255	30	17.7	16.9	266	26	16.6	7.3	204	25	14.2	4.5	229	29	12.5	2.8	159	22	11.5	9.5	083								
9 "	30	21.2	20.7	266	30	17.8	17.3	267	21	15.6	7.6	224	21	18.5	6.8	244	27	13.6	3.0	177	20	11.4	7.9	085								
5 "	30	25.2	24.3	274	30	20.9	20.4	270	20	15.6	7.0	231	9	16.8	6.5	279	19	15.3	5.4	259	16	10.8	7.5	085								
1 "	29	20.5	19.4	277	28	19.6	19.1	271	13	14.2	7.5	260	5	18.0	12.6	292	11	14.6	8.6	299	11	13.5	11.2	093								
0 "	25	13.5	11.7	274	14	17.5	16.0	267	3	7.7	2.6	216	3	13.0	12.3	281	5	12.4	6.1	291	6	12.3	9.4	091								
5 "	21	9.9	5.3	261	8	16.0	14.2	267					1	11.0	11.0	270					2	16.0	7.3	041								
4 "	18	11.4	3.8	251	7	13.7	9.9	270													2	10.0	7.4	028								
0 "	18	10.6	2.5	256	4	10.5	6.7	237													1	2.0	2.0	090								
2 "	11	11.2	6.3	117	3	10.7	5.5	262																								
0 "	5	20.6	19.6	087																												

Station	BAGHDOGRA				BAIRAGARH								BAMRAULI															
	1430				0130				0730				1430				0130				0830*							
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Height in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	6.4	4.8	101	30	6.2	4.7	250	30	9.5	8.5	270	30	9.2	6.3	275	30	5.3	1.8	174	25	5.8	2.0	169				
15 a. g.	28	8.9	6.8	096	28	19.6	16.7	259	29	18.1	16.1	267	30	13.3	8.7	267	29	13.1	2.8	168	25	7.2	3.6	195				
3 a.m.s.l.	28	9.1	7.1	097													29	14.0	2.9	174	25	8.0	3.0	217				
6 "	26	9.5	7.7	096	28	18.0	15.5	253	29	16.1	14.2	265	30	12.9	8.6	267	29	16.3	5.5	193	24	11.3	5.3	270				
9 "	21	10.1	7.8	109	28	20.2	16.3	268	28	21.9	18.8	284	30	12.4	8.7	266	27	14.9	5.2	221	24	14.0	7.4	293				
5 "	17	12.4	9.2	115	23	18.3	13.6	276	26	20.0	16.0	288	28	13.0	8.1	269	24	13.3	6.4	268	24	16.1	8.8	311				
1 "	12	13.1	10.3	105	23	13.1	5.8	290	25	13.4	6.5	304	23	14.3	8.7	275	9	12.0	8.5	320	24	16.5	8.5	315				
0 "	7	17.3	15.6	111	14	10.6	1.3	103	20	10.9	3.5	301	12	12.2	4.4	352	3	12.7	7.8	332	22	15.4	6.8	315				
5 "	1	5.0	5.0	260	3	9.3	1.6	333	12	12.2	5.5	041	5	12.0	4.2	339					18	12.5	4.5	331				
4 "	1	4.0	4.0	020	1	8.0	8.0	040	7	10.4	4.6	012	4	11.7	4.7	349					17	12.2	3.7	331				
0 "	1	3.0	3.0	065					5	10.0	5.3	056	2	12.0	8.2	144					16	12.4	3.8	360				
2 "	1	6.0	6.0	085					3	10.3	9.7	090									16	12.3	5.1	023				
0 "	1	18.0	18.0	095																	10	14.2	8.2	086				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

June 1956

Station	BAMRAULI								BANGALORE								BAREILLY						
	1430				2030*				0130				0730				1430				0730		
Time in I.S.T.																							
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface . .	30	6.9	1.6	029	22	5.8	2.5	130	30	8.7	8.2	256	29	9.2	8.8	253	30	11.1	10.1	262	30	4.4	3.5
0.15 a.g.	30	10.2	3.0	027	22	7.4	3.3	133	23	17.0	16.7	255	28	14.4	13.8	256	30	17.6	16.6	263	30	10.6	7.5
0.3 a.m.s.l.	30	10.6	3.2	034	22	8.0	3.3	139													30	9.8	6.8
0.6 „	29	10.6	1.7	014	22	11.3	4.7	155													29	14.3	6.6
0.9 „	28	10.1	2.6	315	22	14.6	4.6	170													28	14.1	3.5
1.5 „	25	11.9	5.6	315	22	14.0	3.1	245	20	25.9	25.2	271	19	26.5	25.8	267	30	20.1	19.3	262	28	14.1	5.4
2.1 „	20	16.0	8.7	318	22	15.1	5.0	301	18	18.7	17.8	275	13	23.8	2.22	274	25	18.3	17.5	268	24	15.4	7.9
3.0 „	17	15.2	7.8	309	22	16.6	9.2	315	5	8.2	5.2	266	7	21.4	20.2	281	8	14.1	13.5	257	16	15.9	12.3
4.5 „	4	16.7	14.3	325	22	14.4	7.8	335	1	7.0	7.0	005	2	15.0	10.1	273	2	5.0	3.3	162	7	9.9	2.7
5.4 „	4	15.5	11.7	331	22	11.9	4.7	350	1	7.0	7.0	030	1	9.0	9.0	045	1	11.0	11.0	130	6	7.5	1.1
6.0 „	5	9.8	3.9	324	22	11.1	4.4	360	1	6.0	6.0	055	1	8.0	8.0	070	1	15.0	15.0	120	4	8.7	0.8
7.2 „	4	12.2	3.1	081	21	13.4	8.0	041					1	12.0	12.0	080					3	15.3	10.3
9.0 „	2	9.5	5.8	042	17	13.0	10.0	043													1	11.0	11.0

Station	BAREILLY				BEGUMPET								BHAGALPUR										
	1430				0130				0730				1430				0730				1430		
Time in I.S.T.																							
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface . .	30	5.1	2.6	075	30	11.9	11.0	264	30	10.5	10.3	269	30	11.3	10.3	262	30	4.7	3.4	099	30	5.6	2.7
0.15 a.g.	30	7.7	3.2	077	27	19.6	18.5	261	29	14.8	14.2	271	30	15.4	14.3	265	25	12.0	9.3	107	24	10.9	5.3
0.3 a.m.s.l.	30	8.2	3.7	073													25	12.9	9.4	117	24	10.5	5.2
0.6 „	30	9.0	3.6	093	27	14.3	13.4	262	29	11.9	11.5	271	30	12.8	11.7	265	21	15.0	8.3	140	24	11.8	6.7
0.9 „	29	7.5	0.7	004	27	23.9	23.0	271	29	20.6	19.5	280	30	13.9	12.9	269	18	15.3	6.4	152	23	11.9	5.6
1.5 „	27	12.8	8.9	299	26	25.4	23.9	275	25	21.6	20.6	288	28	14.7	13.4	271	12	17.3	4.3	116	17	12.6	5.2
2.1 „	24	17.3	13.9	300	24	17.6	16.1	287	23	14.3	11.7	277	21	13.9	12.5	265	9	15.2	4.1	076	9	18.0	5.5
3.0 „	17	17.7	15.2	304	20	10.3	7.3	285	22	9.5	6.6	259	17	12.8	11.0	265	5	12.4	5.3	308	6	15.3	5.9
4.5 „	14	16.3	12.8	301					15	9.4	6.9	261	4	15.8	15.6	250	2	11.0	5.6	340	3	16.3	16.2
5.4 „	10	14.7	12.3	282					13	8.1	4.1	275					1	5.0	5.0	180	1	14.0	14.0
6.0 „	9	15.2	12.1	285					12	8.0	3.7	267					1	11.0	11.0	060			
7.2 „	7	13.1	12.1	270					2	3.0	3.0	357					1	2.0	2.0	020			
9.0 „	6	9.0	7.5	291					1	13.0	13.0	115					1	6.0	6.0	065			

TABLE IV.—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

June 1956

Station	BHUBANESHWAR												BHUJ											
	0130				0730				1430				0130				0730				1430			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	7.7	5.4	213	30	7.7	5.2	221	30	12.0	8.3	216	30	8.1	7.2	216	30	5.9	5.0	222	30	8.9	7.0	220
15 a.g.	24	14.7	9.7	211	23	12.3	7.8	216	28	14.5	10.2	214	30	17.9	16.1	217	30	13.9	12.2	223	30	19.1	14.5	218
3 a.m.s.l.	24	16.1	10.5	218	23	14.9	10.4	224	28	15.6	10.7	217	30	19.0	17.3	218	30	15.0	13.3	223	30	19.7	15.2	220
6 "	20	15.9	9.0	229	20	17.7	11.2	242	28	15.4	9.7	227	29	22.6	21.5	222	29	21.9	19.8	227	29	18.7	13.9	222
9 "	17	16.0	7.2	241	19	19.1	11.6	252	25	16.4	10.1	255	29	20.5	18.8	220	29	22.7	20.5	230	29	17.1	12.9	221
5 "	16	17.5	7.8	245	17	19.8	10.9	264	22	17.1	10.5	283	24	15.0	11.0	202	24	20.9	16.5	221	24	15.9	11.2	227
1 "	10	15.3	2.1	252	15	16.3	11.9	265	16	16.9	12.5	289	21	11.8	7.4	151	17	18.6	12.1	210	15	10.1	2.8	194
0 "	5	16.4	8.4	245	7	10.1	5.0	243	10	12.6	7.7	294	13	8.2	5.3	088	7	11.7	9.6	132	9	13.3	7.7	114
5 "	1	16.0	16.0	135	4	11.7	2.6	271	4	12.5	9.9	279	5	13.8	11.6	067	2	14.0	12.9	098	6	11.3	8.5	080
4 "					2	6.5	6.3	274					3	15.7	15.7	068	1	13.0	13.0	135	4	10.0	4.3	261
0 "					2	8.5	8.3	259					2	11.0	11.0	102	1	18.0	18.0	120	4	11.0	6.1	095
2 "					1	2.0	2.0	110													4	11.3	9.9	089
0 "																					2	9.5	9.5	082

Station	BIKANER												CHIKALTHANA											
	0130				0730				1430				0130				0730				1430			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	6.9	5.0	214	30	8.8	7.7	227	30	6.9	5.7	218	30	9.7	9.5	269	30	7.9	7.8	272	30	9.7	7.8	260
15 a.g.	29	22.4	16.7	221	30	16.9	13.9	228	30	14.3	10.2	220	28	16.0	15.6	265	28	12.9	12.3	271	28	15.1	13.0	264
3 a.m.s.l.	29	16.1	12.1	217	30	14.9	11.8	230	30	13.9	10.3	221												
6 "	29	27.6	22.8	227	30	21.8	17.1	241	30	13.9	9.9	227												
9 "	27	27.9	20.5	230	29	22.0	17.7	240	29	13.6	8.7	229	28	17.3	17.0	269	28	15.3	14.2	274	25	13.3	11.0	266
5 "	24	17.1	10.6	242	26	17.2	11.8	352	28	13.5	8.9	225	28	18.0	16.8	267	27	15.8	14.7	275	28	13.6	12.2	267
1 "	19	12.5	6.2	262	16	11.5	2.9	334	24	10.5	5.8	234	27	10.9	8.8	249	26	10.7	8.8	256	24	13.0	10.7	267
0 "	11	11.7	4.7	350	10	13.3	2.2	286	22	11.7	4.9	208	26	8.5	5.6	236	24	7.7	5.0	238	17	10.5	8.9	249
5 "	1	26.0	26.0	095	3	16.0	11.1	045	13	10.5	1.7	244	6	8.0	3.0	171	19	8.1	3.4	235	7	9.4	3.3	126
4 "					2	12.5	12.5	070	9	10.2	3.6	283	5	6.6	3.9	053	14	6.6	2.2	023	3	10.7	10.3	130
0 "					2	10.5	5.8	100	9	11.7	4.0	259	2	5.0	2.3	081	9	6.1	2.2	035				
2 "					1	17.0	17.0	315	2	11.5	9.7	008	2	5.0	4.1	121	5	8.0	1.8	179				
0 "																	3	15.7	13.6	070				

TABLE IV--MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

June 1956

Station	COCHIN												DARJEELING												DUM DUM		
	0130				0730				1430				0730				1430				0130						
Time in I.S.T.																											
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v				
Surface . . .	30	3.0	0.9	001	30	2.2	0.7	047	30	5.6	4.5	293	30	0.6	0.4	180	30	1.0	0.5	132	30	6.7	5.0				
0.15 a. g. . .	11	4.5	1.8	312	15	5.3	1.8	040	19	8.0	7.1	287	4	7.0	3.9	160	1	8.0	8.0	225	28	15.1	10.1				
0.3 a. m. s. l. . .	11	6.7	4.9	306	15	6.6	4.5	311	19	10.7	9.8	286									27	17.7	11.9				
0.6 ,, . . .	11	12.0	10.6	300	15	10.2	8.7	304	19	13.6	12.7	289									24	19.1	13.1				
0.9 ,, . . .	10	14.1	13.0	303	14	13.0	11.7	302	19	16.0	15.2	291									22	17.9	13.1				
1.5 ,, . . .	8	14.0	13.1	302	12	14.2	13.6	309	16	19.7	18.6	294									18	19.2	12.7				
2.1 ,, . . .	6	12.8	12.4	313	10	13.0	12.3	305	14	20.2	19.4	296									13	18.6	12.7				
3.0 ,, . . .					6	11.0	10.1	326	10	17.7	16.6	296	4	6.3	4.7	098	1	6.0	6.0	320	6	12.3	9.7				
4.5 ,, . . .					2	5.5	5.5	286	2	12.5	11.5	305	2	8.5	3.8	145	1	11.0	11.0	290							
5.4 ,, . . .					1	2.0	2.0	305									1	4.0	4.0	290							
6.0 ,, . . .																											
7.2 ,, . . .																											
9.0 ,, . . .																											

Station	DUM DUM												GADAG											
	0830*				1430				2030*				0130				0730				1430			
Time in I. S. T.																								
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	
Surface . . .	28	8.6	6.1	177	30	7.9	6.2	177	20	10.3	8.6	179	30	10.4	9.7	252	30	9.4	8.6	243	30	12.1	11.2	
0.15 a. g. . .	28	14.0	9.6	192	28	13.3	9.5	184	20	18.3	15.9	189	29	21.3	21.2	248	28	19.3	18.8	246	30	20.1	19.4	
0.3 a. m. s. l. . .	28	14.9	11.1	199	28	16.2	12.2	191	20	18.5	16.0	193												
0.6 ,, . . .	28	16.4	11.6	210	27	17.1	12.8	196	20	20.0	16.6	200												
0.9 ,, . . .	28	17.8	12.9	217	24	16.7	11.5	207	20	20.9	17.3	204	29	25.7	25.0	259	28	21.5	20.3	255	30	18.9	18.3	
1.5 ,, . . .	27	18.7	11.8	219	19	16.8	9.4	233	20	19.2	15.7	208	21	27.0	26.1	269	15	25.1	23.3	269	24	20.1	19.4	
2.1 ,, . . .	26	18.4	10.9	220	18	18.5	9.6	242	20	18.1	13.6	213	12	14.8	14.1	269	7	19.0	18.3	285	8	19.9	18.9	
3.0 ,, . . .	22	12.1	9.6	209	12	18.5	10.1	258	20	15.8	9.6	213	9	10.3	8.2	264	5	12.0	9.1	261				
4.5 ,, . . .	19	15.9	7.4	203	2	15.0	12.3	265	20	16.4	7.6	219	2	7.5	7.5	205	1	9.0	9.0	205				
5.4 ,, . . .	18	14.7	5.3	192	2	18.5	14.3	175	20	15.8	6.1	208												
6.0 ,, . . .	16	13.3	6.4	209					20	15.3	6.2	201												
7.2 ,, . . .	16	21.5	4.2	178					20	12.6	3.3	122												
9.0 ,, . . .	13	12.4	7.7	122					20	14.2	7.6	089												

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

June 1956

Station	GAUHATI												GAYA											
	0130				0830*				1430				2030*				0130				0730			
Time in I. S. T.																								
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	9.5	0.5	003	28	4.7	2.1	068	30	6.4	2.7	002	28	4.6	1.4	072	30	5.0	2.4	165	30	5.8	1.7	144
15 a. g.	20	7.0	0.6	255	28	6.9	2.7	068	25	9.0	3.0	298	28	6.9	1.6	085	28	13.0	6.4	178	26	10.6	3.5	118
3 a. m. s. l.	20	7.5	2.3	289	28	7.6	3.0	075	25	10.1	3.5	290	28	7.6	1.6	084	28	14.0	6.7	182	26	10.9	3.1	136
6 "	20	9.5	4.1	280	28	10.2	3.4	090	25	10.6	3.9	285	28	9.6	1.9	160	28	16.3	7.8	190	26	13.4	3.3	232
9 "	18	10.9	7.0	249	28	12.0	3.6	122	22	11.4	6.3	251	28	11.5	3.2	209	27	16.0	7.6	199	25	15.0	4.3	271
5 "	15	14.0	12.3	232	28	16.1	7.6	199	17	14.9	10.5	223	28	14.9	9.1	216	26	15.0	3.6	204	20	17.8	4.3	304
1 "	11	15.8	13.6	240	28	16.9	9.5	205	11	15.7	11.5	210	28	15.4	10.9	226	17	12.5	4.2	107	16	16.7	2.1	042
0 "	5	17.2	11.7	250	28	15.9	8.4	199	8	15.1	9.7	220	28	14.7	11.5	226	11	9.6	1.2	075	12	12.8	3.3	090
5 "	1	16.0	16.0	255	27	14.8	9.6	198	3	11.7	7.3	140	28	13.9	9.7	227					6	10.5	4.8	191
4 "					26	14.2	9.7	200	3	9.3	4.9	176	28	13.5	6.6	220					3	11.3	1.6	185
0 "					24	12.0	7.0	190	1	10.0	10.0	135	28	12.5	6.5	225					2	9.0	8.9	100
2 "					24	11.4	4.2	1.7					28	10.5	2.9	188								
0 "					21	14.3	8.6	119					23	12.5	6.2	103								

Station	GAYA				GOPALPUR								GORAKHPUR											
	1430				0130				0730				1430				0730				1430			
Time in I. S. T.																								
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	6.3	1.1	108	30	9.5	8.0	218	30	8.2	5.3	206	30	11.1	8.4	186	30	3.4	2.5	091	30	3.6	2.3	111
15 a. g.	30	11.0	2.7	099	23	18.3	15.0	211	29	15.1	11.0	213	29	18.1	15.2	193	27	9.1	6.5	096	29	8.2	4.4	081
3 a. m. s. l.	30	11.5	2.5	087	23	17.8	14.0	220	29	15.4	11.5	225	29	16.6	12.1	206	27	10.0	6.7	100	29	9.1	4.7	085
6 "	30	11.3	1.2	052	23	15.7	11.6	226	29	15.5	10.8	237	29	14.1	7.6	231	25	12.8	6.3	129	29	10.5	4.6	087
9 "	28	10.6	1.4	345	23	14.8	10.0	237	28	16.2	11.4	250	28	15.6	7.9	277	21	14.3	3.5	136	27	11.5	3.5	093
5 "	24	11.3	2.2	286	20	14.9	13.1	268	26	18.8	14.6	264	25	15.8	13.6	293	16	16.1	4.7	298	24	15.3	1.0	138
1 "	19	15.6	4.3	341	14	13.9	10.7	273	20	16.7	14.6	277	25	17.0	14.2	287	12	14.2	9.2	296	20	15.0	3.1	332
0 "	11	18.9	10.4	322	8	10.7	5.3	250	17	14.9	12.8	274	19	14.0	10.8	268	9	18.3	16.1	311	14	16.1	8.7	295
5 "	2	12.5	9.1	270	3	13.7	5.9	085	9	12.8	5.4	275	13	13.0	6.8	246	2	6.5	2.5	199	6	14.2	9.5	306
4 "	1	7.0	7.0	220	2	10.0	3.5	094	8	9.5	5.6	251	8	11.3	5.3	278	2	3.0	1.1	042	4	14.7	12.0	328
0 "	1	4.0	4.0	230	2	9.5	4.6	070	4	11.0	1.8	272	6	10.0	1.8	280	1	3.0	3.0	018	1	18.0	18.0	300
2 "	1	3.0	3.0	200					2	2.0	1.0	219	6	11.5	3.9	002					1	11.0	11.0	215
0 "													2	13.0	10.3	090								

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9·0 Km. above mean sea level

June 1956

Station	MADRAS								MANGALORE												MASULIPATNAM			
	1430				2030*				0130				0730				1430				0130			
	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	
Surface . .	30	9·1	5·5	259	30	8·8	7·0	190	30	8·1	4·0	241	30	6·5	2·0	240	30	8·9	7·1	256	30	5·7	4·7	2
0·15 a. g.	30	13·4	8·9	264	30	10·2	7·8	194	24	12·6	8·1	266	24	12·0	7·4	254	25	12·4	10·8	254	25	17·9	15·5	2
0·3 a. m. s. l.	30	12·9	10·0	265	30	10·9	8·1	205	24	13·9	11·1	270	23	13·3	11·7	263	25	13·8	12·5	261	25	21·6	18·4	2
0·6 „	30	12·0	10·7	266	30	12·5	10·3	231	22	18·5	16·7	274	23	19·4	18·0	267	24	17·5	16·6	273	25	21·0	17·4	2
0·9 „	30	13·5	12·6	268	30	14·1	12·5	255	19	20·8	19·2	277	22	21·9	20·4	274	22	19·8	19·3	279	25	20·4	18·0	2
1·5 „	30	17·0	16·5	276	30	17·0	16·1	276	12	19·9	18·2	283	13	17·8	16·6	279	16	22·1	20·9	285	25	19·0	17·9	2
2·1 „	30	19·6	19·1	277	30	19·4	18·9	277	8	21·1	19·3	288	9	18·8	17·6	278	12	17·2	15·4	282	22	16·8	15·5	2
3·0 „	25	17·2	15·7	275	30	18·7	17·5	275	6	17·7	16·7	275	5	22·4	20·4	288	6	15·7	14·0	286	11	9·5	7·8	2
4·5 „	13	15·5	8·5	272	29	16·2	10·6	283	1	15·0	15·0	270					2	15·0	13·8	353	2	11·0	10·4	2
5·4 „	13	14·1	2·7	274	29	14·5	7·0	294									1	20·0	20·0	025	1	13·0	13·0	2
6·0 „	12	12·0	0·7	180	29	14·3	5·3	302									1	19·0	19·0	025	1	8·0	8·0	2
7·2 „	8	14·4	11·7	109	29	15·2	3·0	029									1	19·0	19·0	040				
9·0	7	22·4	22·2	089	24	20·3	14·7	091																

Station	MASULIPATNAM								MINICOY												MOHANBARI			
	0730				1430				0130				0730				1430				0130			
	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	
Surface . .	30	5·3	4·8	252	30	8·1	5·9	260	30	10·5	9·9	273	30	9·5	9·3	271	30	11·6	11·1	273	30	1·7	1·2	2
0·15 a. g.	26	13·9	12·6	254	29	13·5	10·8	265	27	20·3	18·9	266	27	18·7	17·7	266	26	20·0	18·8	269	16	7·7	5·0	2
0·3 a. m. s. l.	26	20·0	17·9	266	29	15·1	13·2	265	27	20·5	19·2	268	27	20·8	20·0	269	26	22·2	20·9	270	16	7·5	4·2	2
0·6 „	26	23·8	21·8	275	29	14·9	13·6	273	27	23·8	22·6	273	27	23·5	22·5	271	26	25·3	24·0	272	16	8·9	3·4	2
0·9 „	25	24·8	23·5	282	29	16·3	15·3	277	26	26·3	24·5	277	25	25·2	24·3	279	25	29·4	27·5	276	15	8·6	1·6	2
1·5 „	24	19·1	18·0	281	28	17·2	16·4	284	21	27·8	27·0	284	23	23·6	22·7	285	20	30·7	29·5	277	14	8·7	4·0	2
2·1 „	20	14·5	13·3	273	24	17·6	16·1	282	10	21·0	20·3	296	20	21·5	20·6	286	11	25·1	24·0	279	8	8·9	3·6	2
3·0 „	15	12·3	10·7	263	19	14·3	12·5	274	4	12·5	9·9	278	12	16·5	14·1	293	7	21·0	20·2	275	2	5·0	4·0	2
4·5 „	8	6·6	3·9	255	10	9·6	6·7	255	1	10·0	10·0	340	2	4·0	1·3	298	2	11·0	8·9	268	1	10·0	10·0	2
5·4 „	6	7·7	2·7	241	8	10·4	4·6	264					1	6·0	6·0	360								
6·0 „	4	6·5	1·7	104	8	11·6	4·7	248					1	4·0	4·0	010								
7·2 „	2	8·5	8·3	098	6	10·3	3·2	034					1	10·0	10·0	085								
9·0 „	1	14·0	14·0	095	2	6·0	3·1	118					1	12·0	17·0	095								

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9·0 Km. above mean sea level

June 1956

Station	MOHANBARI								MUSSOORIE								NAGPUR							
Time in I.S.T.	0730				1430				0730				1430				0130				0830*			
Height in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	2·2	0·9	070	30	4·2	2·5	052	30	1·6	0·4	322	30	3·2	2·8	211	30	4·1	2·4	250	30	7·7	5·9	270
5 a.g.	19	6·5	3·0	087	28	8·3	4·3	055	20	8·2	5·2	319	13	7·5	5·4	215	29	10·4	6·5	280	30	9·3	6·5	274
a.m.s.l.	19	7·2	2·6	086	28	8·2	5·2	055																
"	18	11·8	3·1	179	28	6·9	1·8	109									29	11·4	8·3	283	30	10·9	8·0	277
"	16	15·4	6·7	200	26	8·8	4·9	215									29	13·3	9·5	286	30	14·5	11·4	287
"	10	16·8	7·9	204	20	14·6	13·3	222									29	13·6	9·6	289	30	14·6	10·5	294
"	6	10·3	3·8	116	12	15·3	13·4	213	20	5·7	3·5	319	13	7·3	6·2	216	24	12·5	7·3	287	30	13·6	8·2	293
"	5	10·4	5·7	133	9	15·3	13·1	209	18	16·9	16·5	305	12	12·7	8·1	290	21	12·0	5·2	300	29	11·5	3·8	310
"	3	8·0	7·2	154	2	15·5	12·4	217	11	14·4	12·3	318	10	13·7	10·4	320	5	9·8	6·4	043	28	12·2	6·3	033
"	1	15·0	15·0	200	1	13·0	13·0	235	6	14·2	8·3	298	10	15·9	11·0	304	1	7·0	7·0	160	27	12·3	6·0	038
"	1	17·0	17·0	205	1	17·0	17·0	225	3	19·0	19·0	281	9	18·0	14·1	291					27	12·8	6·6	048
"	1	17·0	17·0	175					3	15·0	11·0	277	8	21·6	20·3	279					25	14·4	10·7	072
"									2	20·5	20·5	284	7	28·3	26·0	288					21	18·6	16·0	083

Station	NAGPUR								NEW DELHI															
Time in I.S.T.	1430				2030*				0130				0830*				1430				2030*			
Height in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	9·4	7·1	278	29	5·4	2·8	267	30	6·2	1·5	159	30	8·4	1·9	250	30	8·7	3·3	341	29	6·0	1·7	095
5 a.g.	29	11·0	8·4	272	29	6·8	4·0	268	30	13·2	5·1	191	30	10·3	2·4	244	30	10·7	3·4	347	29	7·1	1·6	083
a.m.s.l.									30	10·7	3·8	178	30	9·7	1·6	242	30	10·2	3·6	340	29	6·5	1·5	082
"	29	11·5	8·2	269	29	8·1	5·5	265	30	15·1	6·5	218	30	13·3	5·0	256	30	11·8	4·3	338	29	9·2	0·7	112
"	28	11·7	9·0	251	29	7·7	8·6	267	29	16·0	7·1	237	29	16·2	7·4	271	30	12·1	4·9	316	29	11·1	1·7	214
"	28	11·7	9·2	277	29	12·5	6·3	290	27	13·0	7·5	283	29	17·6	11·7	290	26	11·0	5·0	298	22	12·1	5·0	265
"	26	13·0	9·7	281	29	12·9	9·5	286	22	12·9	8·0	302	28	15·5	11·0	306	24	11·6	6·3	293	29	12·8	8·4	282
"	23	14·0	8·3	289	29	13·0	7·0	304					28	13·7	9·0	317	22	12·5	8·0	295	29	13·9	10·7	295
"	9	11·6	1·2	337	27	14·0	2·8	315					28	12·7	7·8	317	17	15·6	11·5	290	29	15·7	11·9	316
"	5	11·2	1·6	034	23	12·9	4·3	005					28	12·5	7·0	298	16	16·1	12·2	283	29	15·0	10·2	318
"	3	11·7	2·9	061	22	12·2	5·2	041					28	12·5	6·4	289	12	15·1	9·3	271	29	14·6	10·4	309
"	2	21·0	9·3	067	20	15·2	9·6	061					28	13·9	7·3	295	11	16·2	8·5	276	29	14·9	9·7	307
"	1	15·0	15·0	345	18	20·7	17·9	076					27	14·3	7·3	225	6	18·3	10·6	267	24	14·9	7·1	294

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPRPE WINDS

Winds up to 9.0 Km. above mean sea level

June 1956

Station	POONA												PORT BLAIR										
	0130				0730				1430				2030*				0130				0730		
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface . . .	30	3.7	3.6	262	30	2.8	2.5	245	30	9.2	8.4	260	3	6.7	6.2	250	30	7.1	6.3	216	30	6.8	6.0
0.15 a. g.	30	11.8	11.5	253	30	9.6	9.3	249	30	13.6	12.7	257	3	11.3	11.3	245	27	16.1	14.4	219	28	11.8	10.2
0.3 a. m. s. l.																	27	16.9	15.1	220	28	13.7	11.9
0.6 "	30	6.3	6.2	259	30	5.8	5.4	250	30	10.1	9.3	257	3	8.3	8.3	245	27	20.2	17.7	224	28	19.0	16.8
0.9 "	30	14.5	14.3	254	30	14.1	13.7	250	30	16.1	14.9	259	3	16.3	16.2	242	26	20.8	17.8	230	28	19.1	16.3
1.5 "	23	20.3	19.6	257	25	20.9	19.7	256	29	17.9	16.7	253	3	21.0	20.7	251	19	16.8	14.1	228	20	16.5	13.1
2.1 "	13	12.9	10.1	243	17	18.2	16.2	251	26	15.2	14.4	250	3	25.3	23.9	267	15	14.7	10.9	220	17	15.2	10.8
3.0 "	8	6.4	4.8	197	11	10.4	6.2	215	22	9.2	4.6	233	3	25.0	21.6	280	6	6.7	5.2	163	15	11.9	6.0
4.5 "	3	7.3	6.8	157	7	6.0	4.1	149	22	9.0	3.1	205	2	7.0	5.5	078					9	6.8	4.8
5.4 "	2	8.0	4.7	066	6	7.8	6.1	144	21	8.2	1.8	139	2	13.5	13.3	087					7	8.3	5.8
6.0 "	2	7.5	6.3	073	6	7.0	5.1	117	19	8.0	5.3	083	1	19.0	19.0	080					7	8.3	6.3
7.2 "	1	11.0	11.0	020	3	7.7	7.5	119	9	8.4	6.7	099									5	12.0	11.4
9.0 "									4	15.7	14.7	067											

Station	PORT BLAIR				RAIPUR								SANTACRUZ										
	1430				0130				0730				1430				0130				0830*		
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface . . .	30	13.3	11.0	230	30	4.2	3.1	227	30	4.3	3.2	226	30	3.6	2.3	255	30	6.6	5.1	207	30	8.0	6.9
0.15 a. g.	26	16.0	14.2	228	24	16.2	13.5	245	28	14.6	11.5	246	29	10.5	7.3	264	29	13.8	12.3	214	29	14.0	12.1
0.3 a. m. s. l.	26	16.8	14.8	226													29	15.0	14.0	221	29	12.6	13.2
0.6 "	25	18.2	16.2	226	24	18.6	15.2	257	28	18.7	14.2	265	29	12.8	9.5	264	27	15.7	15.2	228	29	15.6	11.7
0.9 "	19	16.3	14.6	230	24	19.9	15.0	266	26	18.8	13.3	279	29	14.4	11.1	272	22	15.5	15.0	224	29	16.2	14.6
1.5 "	11	13.1	11.5	205	24	15.7	10.4	269	22	19.1	12.7	299	25	15.9	10.7	295	16	15.4	14.3	238	29	17.0	15.8
2.1 "	10	10.3	7.3	199	20	11.5	6.7	282	22	17.0	13.0	298	23	17.0	10.7	300	6	9.0	8.0	222	13	15.4	14.2
3.0 "	1	2.0	2.0	245	12	9.1	1.4	005	19	13.9	9.2	309	15	13.9	7.3	309	3	7.3	5.3	168	28	12.7	9.5
4.5 "					2	5.5	5.5	060	7	13.1	9.3	330	6	10.8	7.0	002					28	10.0	2.4
5.4 "									1	15.0	15.0	270	4	12.7	11.0	345					27	8.8	3.1
6.0 "													3	9.7	9.5	348					27	8.8	4.6
7.2 "													3	12.3	11.5	006					27	10.7	8.7
9.0 "													1	11.0	11.0	025					26	13.7	13.1

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

June 1956

Station	SANTACRUZ								TEZPUR								TIRUCHIRAPALLI											
	1430				2030*				0130				0730				1430				0130							
e in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D				
in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
ace . . .	30	8.6	7.1	246	30	9.0	8.1	230	30	1.8	0.6	164	30	2.4	8.8	188	30	2.3	1.7	237	30	15.7	15.4	271				
a. g. . .	28	14.6	13.0	230	28	14.5	13.1	230	21	12.8	7.9	207	24	9.6	3.5	163	27	9.5	3.8	232	25	21.4	21.0	271				
a. m. s. l. . .	28	16.2	15.2	233	28	14.8	13.7	232	21	13.7	8.5	215	24	11.5	4.9	166	27	10.5	3.9	227	25	22.5	22.1	271				
.. . .	28	17.1	16.4	238	28	15.3	14.5	238	21	15.5	10.5	245	23	14.2	5.4	220	27	11.8	5.1	221	25	32.5	32.2	271				
.. . .	24	17.7	16.6	242	28	15.7	14.9	244	19	17.9	12.5	252	21	14.6	5.2	230	25	12.6	5.6	225	25	34.6	34.2	272				
.. . .	15	18.4	16.2	245	28	16.3	15.5	243	14	18.0	13.6	249	18	15.5	7.1	225	23	15.8	8.9	229	22	26.7	25.7	275				
.. . .	8	12.6	9.2	229	28	15.3	14.5	238	11	16.6	12.4	240	14	18.4	7.8	238	21	17.7	13.7	231	17	13.6	12.1	280				
.. . .					28	13.3	11.3	240	2	24.0	5.9	148	8	14.0	9.5	239	13	16.3	12.7	229	11	8.3	33.3	331				
.. . .					27	11.1	3.7	213					3	11.7	8.8	136	7	12.9	9.7	236	4	6.3	2.7	038				
.. . .					27	10.6	3.2	117					1	14.0	14.0	170	1	5.0	5.0	125	2	9.5	6.7	073				
.. . .					26 9.9	5.6	109					1	14.0	14.0	175	1	6.0	6.0	125	1	11.0	11.0	075					
.. . .					26	10.2	7.7	098									1	6.0	6.0	170								
.. . .					24	14.4	13.4	087									1	8.0	8.0	160								
Station	TIRUCHIRAPALLI								TRIVANDRUM								UDAIPUR											
e in I.S.T.	0730				1430				0130				0730				1430				0130							
in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
ace . . .	30	12.4	12.3	270	30	17.8	16.8	275	30	4.9	4.4	324	30	3.1	2.8	242	30	7.0	6.3	317	30	5.2	5.0	223				
a. g. . .	29	18.2	17.7	273	29	20.1	18.7	273	26	15.4	14.1	314	27	13.8	12.3	332	27	15.2	14.1	302	30	11.0	10.6	233				
a. m. s. l. . .	29	20.5	20.2	274	29	20.6	19.3	274	26	18.3	16.8	311	27	17.1	15.1	317	27	17.8	17.0	300								
.. . .	29	28.4	27.9	275	29	19.6	19.1	272	26	25.6	23.9	304	27	24.2	22.2	302	24	23.5	21.8	299								
.. . .	29	28.7	27.7	277	29	19.8	19.5	269	22	29.2	27.5	298	26	27.3	25.6	297	22	26.5	24.6	299	30	12.6	12.0	236				
.. . .	29	25.0	23.8	273	25	18.8	18.1	271	16	31.6	29.8	302	20	29.7	28.3	296	20	31.9	30.3	298	27	15.3	10.4	231				
.. . .	27	17.6	15.9	275	22	17.4	16.2	271	7	29.9	28.5	312	13	26.5	24.8	297	11	30.2	28.4	297	25	11.1	5.1	213				
.. . .	18	11.1	9.8	277	16	12.6	11.5	281	1	17.0	17.0	305	7	19.0	17.8	285	3	19.3	18.7	310	22	10.9	7.8	117				
.. . .	11	11.2	3.3	278	8	9.5	4.8	021					2	7.5	2.6	346	1	6.0	6.0	020								
.. . .	8	10.5	4.1	070	7	13.0	6.4	076					1	5.0	5.0	215	1	11.0	11.0	330								
.. . .	7	12.9	6.8	088	5	13.8	9.8	081					1	13.0	13.0	130	1	14.0	14.0	320								
.. . .	3	18.7	18.3	083	1	22.0	22.0	100																				
.. . .	1	30.0	30.0	095	1	25.0	25.0	075																				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9·0 Km. above mean sea level

June 1956

Station	UDAIPUR								VENGURLA								VERAVAL						
	0730				1430				0130				0730				1430				0130		
Time in I.S.T.																							
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface	30	3·5	3·3	238	30	4·8	4·3	232	30	2·4	1·9	230	30	3·5	1·9	239	30	5·4	5·1	244	30	17·7	15·7
0·15 a.g.	30	9·6	8·6	245	30	11·0	8·6	222	27	10·1	7·4	246	26	12·3	8·0	248	26	11·7	11·0	253	28	15·2	13·1
0·3 a.m.s.l.									27	12·1	10·3	249	26	13·7	11·0	249	26	13·7	12·8	258	28	15·4	13·0
0·6 "									20	13·0	11·6	262	23	17·4	15·6	260	23	18·4	17·5	265	27	16·0	14·1
0·9 "	30	12·3	10·7	244	30	11·8	8·8	222	17	15·6	14·2	268	13	18·9	17·7	264	15	18·7	17·5	274	17	14·9	12·5
1·5 "	24	13·1	8·5	235	30	11·6	8·2	219	10	17·4	16·4	279	7	16·6	15·8	273	8	18·6	16·9	273	8	12·6	11·1
2·1 "	21	10·2	4·6	135	27	10·6	4·1	225	4	14·3	13·1	274	4	12·7	11·3	278	5	15·8	13·4	275	6	9·7	7·1
3·0 "	19	6·3	6·0	105	22	11·1	2·5	170	4	13·3	12·5	285	3	6·7	3·6	267	3	17·3	14·1	254	2	10·5	7·2
4·5 "	10	13·1	5·2	096	13	12·5	2·7	124	1	7·0	7·0	200	1	3·0	3·0	310	2	19·0	17·0	212			
5·4 "	8	13·7	5·2	169	11	10·3	3·1	267					1	4·0	4·0	045							
6·0 "	6	12·3	9·3	125	11	11·0	2·9	311					1	9·0	9·0	040							
7·2 "	2	9·0	9·0	040	9	7·1	2·1	015					1	5·0	5·0	070							
9·0 "					5	11·2	8·4	087					1	19·0	19·0	105							

Station	VERAVAL								VISAKHAPATNAM											
	0730				1430				0130				0730				1430			
Time in I.S.T.																				
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	14·3	11·7	230	30	17·0	15·0	239	30	4·0	3·8	227	30	6·7	6·1	231	30	13·0	11·7	217
0·15 a.g.	29	15·7	13·9	233	30	15·8	14·0	233	29	8·3	7·6	238	28	9·2	8·3	241	28	12·8	11·3	217
0·3 a.m.s.l.	29	16·6	14·3	235	29	17·0	15·6	238	29	10·7	9·5	242	28	11·2	10·6	247	28	11·5	10·1	225
0·6 "	26	17·0	14·9	241	28	17·3	15·3	239	29	13·9	12·2	250	28	13·8	13·1	251	28	10·4	9·5	243
0·9 "	21	16·8	15·7	246	24	17·6	16·8	241	29	15·0	13·1	257	28	15·5	14·1	262	28	10·5	9·1	258
1·5 "	10	12·7	9·3	230	15	12·9	12·2	241	24	17·6	15·8	274	24	16·0	14·0	280	26	14·7	12·6	284
2·1 "	4	12·5	8·1	162	8	9·2	7·1	221	18	13·6	12·7	254	19	12·6	11·1	286	24	16·1	14·0	284
3·0 "	1	7·0	7·0	155	5	7·0	5·9	173	15	8·4	6·8	297	15	9·0	5·1	278	20	12·1	10·7	278
4·5 "					3	12·3	12·1	171	2	13·0	5·5	165	5	7·6	3·1	335	9	9·3	8·7	261
5·4 "					3	8·0	7·9	147					3	5·3	4·7	317	7	8·6	5·6	251
6·0 "					3	5·3	5·1	143					1	7·0	7·0	295	7	8·1	5·0	223
7·2 "					1	5·0	5·0	040									5	8·2	2·5	130
9·0 "					1	8·0	8·0	130									4	14·7	14·3	085

TABLE V—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds above 9.0 Km. above mean sea level

June 1956

				Ht. in Km.					Ht. in Km.					Ht. in Km.					Ht. in Km.						
n	V	v	D		n	V	v	D		n	V	v	D		n	V	v	D		n	V	v	D		
AMBALA					BAREILLY					GAUHATI					JODHPUR					MADRAS					
1430 hrs.					1430 hrs.					0830 hrs.*					0830 hrs.*					2030 hrs.*					
6	16.3	14.9	259	10.5	5	10.8	9.0	189	10.5	15	19.0	8.7	120	10.5	16	16.7	8.0	102	10.5	20	30.3	28.4	094		
4	17.5	16.1	249	12.0	3	15.0	5.4	190	12.0	13	20.7	8.8	092	12.0	14	17.1	11.8	094	12.0	14	41.5	40.9	092		
2	16.0	15.9	241	14.1	1	3.0	3.0	185	14.1	6	26.7	12.0	045	14.1	10	28.9	19.2	101	14.1	8	70.9	70.1	085		
1	17.0	17.0	210	16.2	1	22.0	22.0	260	16.2	2	19.5	19.0	092	16.2	2	23.0	23.0	115	16.2	1	52.0	52.0	110		
1	15.0	15.0	240						18.0	1	20.0	20.0	060												
1	17.0	17.0	200												1430 hrs.										
					BEGUMPET					2030 hrs.*				10.5	4	7.3	4.5	090			MINICOY				
					0730 hrs.				10.5	21	15.1	9.4	075	12.0	3	9.0	8.8	165			0730 hrs.				
ANANTAPUR				10.5	1	19.0	19.0	120	12.0	17	20.7	12.9	063	14.1	2	19.5	19.4	127	10.5	1	29.0	29.0	115		
0730 hrs.									14.1	5	28.8	10.2	089	16.2	2	30.0	29.1	132							
2	22.5	22.4	101		CHIKALTHANA				16.2	1	8.0	8.0	085	18.0	2	32.0	32.0	090							
1	37.0	37.0	110		0730 hrs.				20.0					20.0	1	8.0	8.0	055			MUSSOORIE				
										GOPALPUR					2030 hrs.*					1430 hrs.					
				10.5	2	21.0	20.5	101		1430 hrs.										10.5	5	18.0	17.8	299	
BAMRAULI				12.0	1	24.0	24.0	085	10.5	2	23.5	22.7	098	10.5	10	11.4	4.7	075	12.0	3	22.3	20.5	296		
0830 hrs.*				14.1	1	55.0	55.0	105	12.0	1	31.0	31.0	075	12.0	8	12.7	6.2	115	14.1	2	22.5	21.9	303		
7	19.6	15.5	088	16.2	1	65.0	65.0	100	14.1	1	8.0	8.0	085	14.1	4	17.2	12.0	135	16.2	1	27.0	27.0	340		
5	25.8	25.4	095						16.2	1	46.0	46.0	090	16.2	1	13.0	13.0	110							
2	41.0	40.7	095		DUM DUM				18.0	1	57.0	57.0	080												
2	39.0	38.5	090		0830 hrs.*										MADRAS					NAGPUR					
										GWALIOR					0830 hrs.*					0830 hrs.*					
				10.5	13	20.0	17.7	094		1430 hrs.				10.5	22	28.5	27.5	091	10.5	18	23.5	15.8	088		
				12.0	11	34.6	34.0	089	10.5	1	26.0	26.0	290	12.0	20	42.7	41.5	085	12.0	15	28.5	27.7	092		
11	13.5	6.6	095	14.1	7	43.0	41.5	091	14.1	14	67.6	48.6	078	14.1	14	67.6	48.6	078	14.1	10	50.9	48.8	090		
4	28.0	21.2	100	16.2	3	53.3	52.9	079	16.2	4	85.5	84.7	086	16.2	4	85.5	84.7	086	16.2	4	57.0	56.5	086		
2	41.5	41.0	090		2030 hrs.*									18.0	2	86.0	84.8	088							
1	22.0	22.0	105							JAGDALPUR					0830 hrs.*					2030 hrs.*					
				10.5	18	19.5	15.7	087	10.5	2	14.5	13.1	078	21.0	1	141.0	141.0	100							
				12.0	17	25.4	21.3	079	12.0	1	33.0	33.0	110		1430 hrs.				10.5	12	25.2	22.2	084		
				14.1	7	44.6	41.7	092	14.1	1	30.0	30.0	090						12.0	8	32.6	32.1	082		
				16.2	4	61.3	55.8	092					10.5	2	13.0	13.0	097		14.1	2	66.0	65.1	083		
				18.0	2	86.5	84.0	107											16.2	1	52.0	52.0	070		

TABLE V—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds above 9.0 Km. above mean sea level

June 1956

Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D
	NEW DELHI					SANTACRUZ					VENGURLA			
	0830 hrs.*					2030 hrs.*					0730 hrs.			
10.5	26	13.7	5.8	273	10.5	21	20.5	19.8	088	10.5	1	30.0	30.0	100
12.0	22	15.9	7.8	216	12.0	18	29.0	28.2	097		VERAVAL			
14.1	19	13.3	1.4	016	14.1	14	43.9	43.4	102		1430 hrs.			
16.2	15	13.8	7.2	052	16.2	7	56.4	56.3	103		10.5 1 9.0 9.0 100			
18.0	6	19.5	16.0	059	18.0	6	73.2	71.7	102	12.0	1	30.0	30.0	085
	1430 hrs.				20.0	1	79.0	79.0	105	14.1	1	45.0	45.0	080
						TEZPUR					VISAKHAPATANAM			
						1430 hrs.					1430 hrs.			
10.5	4	18.5	8.7	180	10.5	1	8.0	8.0	095	10.5	2	37.5	35.9	088
12.0	3	15.3	12.9	178	12.0	1	16.0	16.0	115					
14.1	3	24.3	15.9	158	14.1	1	13.0	13.0	080					
16.2	1	21.0	21.0	130	16.2	1	15.0	15.0	080					
					18.0	1	21.0	21.0	120					
	2030 hrs.*					TIRUCHIRAPALLI								
10.5	23	14.8	6.7	267		0730 hrs.								
12.0	21	14.9	6.8	214	10.5	1	36.0	36.0	090					
14.1	14	14.6	6.6	191	12.0	1	43.0	43.0	080					
16.2	6	13.7	3.1	103		1430 hrs.								
					10.5	1	21.0	21.0	105					
					12.0	1	40.0	40.0	095					
	SANTACRUZ					UDAIPUR								
	0830 hrs.*					1430 hrs.								
10.5	24	19.9	19.6	094	10.5	1	15.0	15.0	095					
12.0	23	29.5	29.0	095	12.0	1	17.0	17.0	100					
14.1	20	38.5	33.7	098										
16.2	14	59.3	57.1	100										
18.0	9	59.4	57.7	098										
21.0	4	46.2	24.0	244										

RADIOSONDE DATA

June 1956

During the month, observations of upper air temperature, pressure and humidity were made at 13 stations in India as given in the list low. For a detailed description of the instruments used a reference may be made to the I.M.D. Scientific Notes Nos. 112 and 113 (Volume IX).

LIST OF RADIOSONDE STATIONS IN INDIA

Serial No.	Name of station	Type of instrument used	Date of starting	Hours of routine observations in GMT during the month	Remarks
1	Allahabad	Clock type	1st October, 1954	03 and 15	
2	Bombay	Clock type	7th September, 1954	03 and 15	
3	Calcutta	Clock type	13th December, 1946	03 and 15	Fan type used from 13th December, 1946 to 30th November, 1947.
4	Gauhati	Clock type	22nd July, 1955	03 and 15	
5	Jodhpur	Clock type	17th April, 1946	03 and 15	
6	Madras	Fan type	29th June, 1946	03 and 15	
7	Nagpur	Fan type	1st October, 1946	03 and 15	
8	New Delhi	Clock type	3rd December, 1943	03 and 15	
9	Poona	Fan type	24th April, 1944	15	
10	Port Blair	Fan type	4th December, 1949	15	
11	Trivandrum	Fan type	1st July, 1947	15	
12	Veraval	Fan type	3rd October, 1944	15	
13	Visakhapatnam	Fan type	8th December, 1946	15	

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(B) From Ascents at 15 Hours G. M. T.

June 1956

Standard surface height ft.	NAGPUR Surf. Pr. (966 mb.)						NEW DELHI (972 mb.)						POONA (942 mb.)					
	No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A			
			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point
Surface	30	311	302.9	303	299	294.2	29	210	307.0	312	301	294.6	29	557	298.3	301	295	293.0
1000	30	-1	..	..	..	..	29	-45	..	..	..	..	29	33	..	..	..	..
900	29	938	299.3	304	293	289.5	29	907	303.4	310	296	290.6	29	958	294.6	297	292	290.8
850	29	1440	296.0	301	288	287.7	29	1417	300.5	306	295	287.8	29	1452	291.8	295	289	288.4
800	29	1965	292.2	298	285	285.5	29	1950	296.3	302	291	286.0	29	1972	289.2	293	287	284.8
700	29	3101	285.0	290	279	278.6	29	3096	287.1	291	282	276.9	29	3101	284.6	288	281	277.7
600	29	4376	277.6	281	273	271.0	29	4378	278.5	282	276	270.5	29	4374	277.3	281	275	270.1
500	23	5838	270.3	273	265	..	29	5846	271.4	277	266	..	29	5841	269.9	273	267	..
400	20	7605	260.2	267	256	..	29	7593	261.7	266	254	..	29	7576	260.4	265	257	..
300	16	9812	247.4	255	237	..	24	9748	248.6	254	242	..	26	9714	246.8	253	242	..
250	13	11163	238.8	247	231	..	22	11053	239.8	246	235	..	20	11020	236.7	245	232	..
200	9	12646	226.1	231	213	..	21	12576	229.2	237	223	..	15	12539	225.9	235	221	..
175	6	13563	218.2	227	206	..	19	13488	222.8	234	216	..	12	13457	219.7	233	210	..
150	6	14344	212.8	225	196	..	15	14457	216.1	230	208	..	12	14414	213.0	231	200	..
125	5	15518	208.8	222	195	..	11	15580	209.2	223	200	..	7	15549	204.6	212	196	..
100							5	16821	199.4	209	195	..						
80																		
	PORT BLAIR (998 mb.)						TRIVANDRUM (1001 mb.)						VERAVAL (1000 mb.)					
Surface	30	79	299.8	301	297	298.0	28	64	297.9	300	296	295.8	23	8	302.2	303	299	294.2
1000	29	61	..	..	..	..	28	77	..	..	..	..	21	8	..	..	..	..
900	29	986	294.8	297	292	291.8	28	995	292.6	295	290	289.3	20	940	294.7	297	292	291.1
850	29	1481	292.4	295	290	288.4	28	1487	290.0	293	287	286.2	20	1434	292.1	295	289	287.5
800	28	2001	289.9	293	285	285.3	28	2002	287.3	290	282	283.2	20	1959	290.3	295	287	283.5
700	27	3130	284.4	290	281	278.0	28	3120	282.1	285	277	266.5	18	3082	284.0	289	278	276.6
600	26	4406	278.0	285	274	271.4	28	4381	275.5	279	271	269.1	16	4352	277.8	285	274	269.2
500	25	5873	270.0	281	266	..	28	5831	267.0	271	263	..	10	5830	269.7	273	265	..
400	24	7609	260.2	275	257	..	27	7546	256.9	260	251	..	10	7564	260.4	267	256	..
300	20	9728	245.8	253	239	..	22	9683	242.5	253	237	..	8	9689	245.3	253	242	..
250	13	11036	238.0	242	228	..	22	10912	230.9	239	221	..	7	10979	236.2	246	231	..
200	8	12569	227.1	239	218	..	20	12382	220.2	231	214	..	7	12499	225.3	233	218	..
175							19	13241	213.4	227	204	..	7	13374	219.7	230	211	..
150							17	14260	207.5	223	201	..	7	14353	213.6	226	203	..
125							14	15296	201.5	215	195	..						
100							13	16607	198.8	208	192	..						
80							8	17908	198.1	203	189	..						

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(B) From Ascents at 15 Hours G. M. T.

June 1956.

Standard Pressure Surface mbs.	VISAKHAPATNAM Surf. Pr. (996 mb.)													
	No. of Obs.	Ht. gpm.	Temperature °A											
			Mean	Max.	Min.	Dew Point								
Surface	25	48	301.6	305	298	297.2								
1000	25	10	..	..	..	..				
900	25	941	297.7	305	291	290.4								
850	25	1440	294.9	300	290	288.4								
800	25	1963	291.3	295	287	286.6								
700	25	3093	284.6	290	281	279.2								
600	25	4364	277.0	281	273	270.0								
500	25	5824	269.3	274	263	..								
400	24	7557	259.3	265	255	..								
300	19	9689	246.1	256	237	..								
250	16	10971	236.0	246	227	..								
200	13	12467	222.7	234	213	..								
175	12	13297	216.1	229	207	..								
150	12	14276	209.7	227	200	..								
125	8	15382	202.5	223	195	..								
100	7	16714	198.7	218	187	..								
80														

NOTE.—Number of observations refer to those of dynamic height.

Means are not worked out for temperature and dew point for the 1000 mb. surface and for dew point for standard pressure surfaces with temperature less than 273° A.

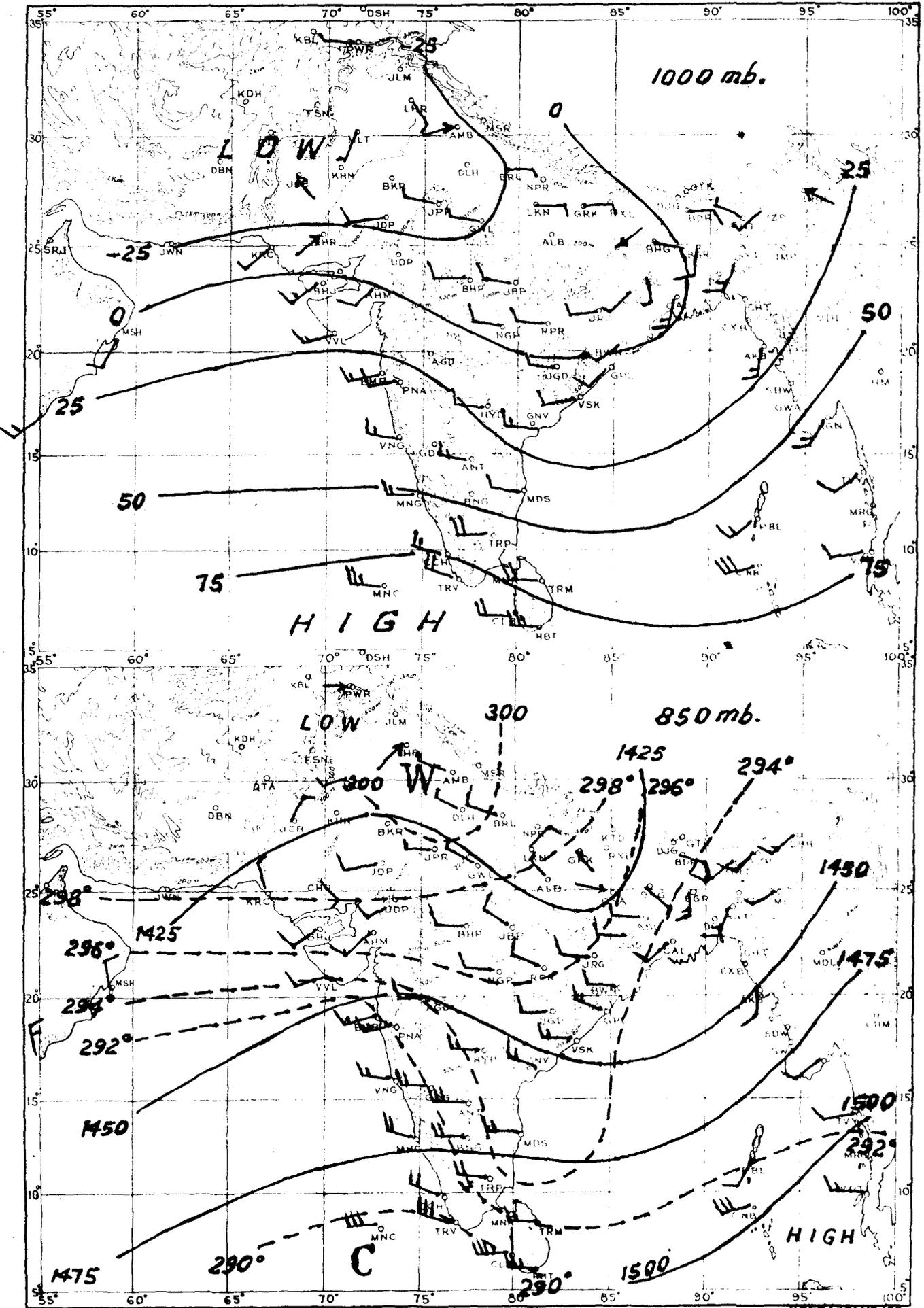
Means are not worked out for less than five observations at standard pressure surfaces.

MONTHLY MEAN CONSTANT PRESSURE CHARTS

JUNE 1956

I. Met. D.

Plate I



RESULTANT WIND — 5 Knots, — 10 Knots, — 50 Knots.

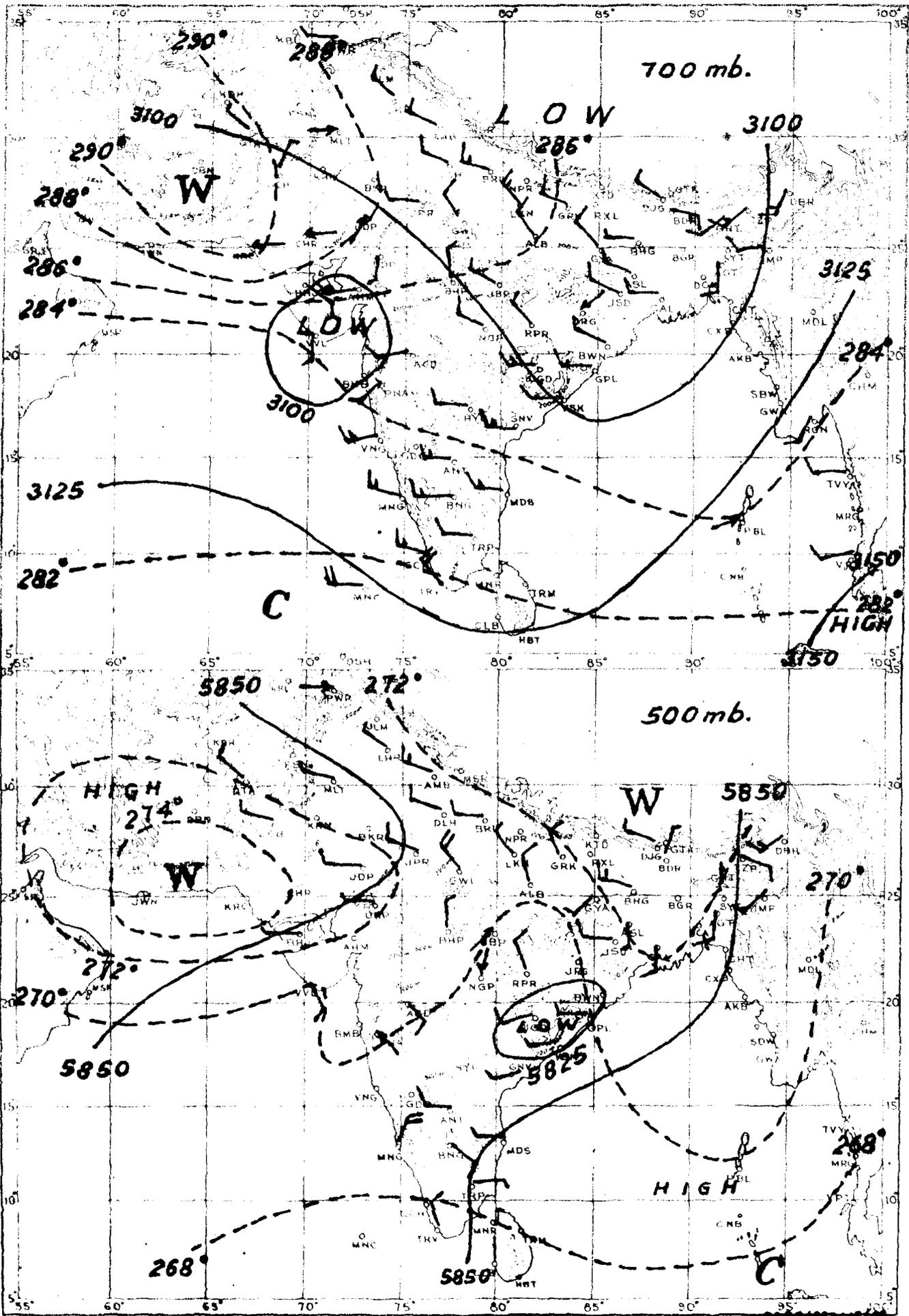
----- Isotherms in degrees absolute. ———— Contours in geopotential metres.

MONTHLY MEAN CONSTANT PRESSURE CHARTS

JUNE 1956

Plate II

I. Mel. D.



RESULTANT WIND — 5 Knots, — 10 Knots, — 50 Knots.

..... Isotherms in degrees absolute.

———— Contours in geopotential metres.

INDIA WEATHER REVIEW, 1956**Monthly Weather Report****July**

Published by authority of the Government of India

Chief features—

The chief feature of the month was well distributed rain over the country as a result of steady activity of the monsoon.

Conditions became markedly unsettled in the northwest and adjoining west central Bay of Bengal on the morning of 1st July and a depression formed the same evening with centre near Lat. 19° N and Long. $87\frac{1}{2}^{\circ}$ E. Moving northwards, it became a deep depression with centre near Lat. $20\frac{1}{2}^{\circ}$ N and Long. $87\frac{1}{2}^{\circ}$ E on the morning of the 2nd. It crossed the coast the same night between Puri and Chandbali and was centred about 30 miles to the northeast of Angul on 3rd morning. Moving slowly westwards, it weakened into a depression with centre about 70 miles to the westsouthwest of Sambalpur on 4th morning. The next day, it lay as a "low" extending from northeast Madhya Pradesh to southwest Rajasthan and became unimportant on the 6th. In association with this depression, there was a strengthening of both the branches of the monsoon. Locally heavy to very heavy rains occurred in Orissa, Saurashtra and Kutch, Gujarat and along the west coast. Some noteworthy falls were—Mangalore 6" on 1st July; Khandala 11" on 2nd; Deesa 6" on 3rd; Dahanu 8", Jagdalpur, Ahmedabad and Rajkot 5" each on 4th and Khandala 11", Mahabaleshwar 10", Porbandar 7" and Rajkot 6" on 5th.

Simultaneously with the "low" extending from northeast Madhya Pradesh to southwest Rajasthan, there appeared on the 5th, a trough of low pressure extending from Saurashtra to southwest Rajasthan. Its southern end became active and a well marked low pressure area formed over Kutch and neighbourhood on the 6th. It, however, became an elongated "low" extending from lower Sind to the Gulf of Oman on the next day and persisted there for two days. Under its influence, the monsoon was strong to vigorous in Saurashtra and Kutch, Gujarat and the north Konkan, Porbandar recording a heavy fall of 7" on 6th. A country craft with fifteen persons aboard was reported to have sunk in the Gulf of Kutch near Jamnagar on the 6th. According to newspaper reports, a few thousands of people were rendered homeless in Saurashtra due to house collapses resulting from heavy rains. Railway communications were also reported to have been dislocated in Saurashtra due to breaches on the railway track.

A well marked "low" appeared over Gangetic West Bengal and neighbourhood on the morning of the 7th. Moving slowly westwards, it lay over northeast Madhya Pradesh on the 9th and became unimportant on the 10th. It served to maintain the activity of the monsoon and well-distributed rainfall continued over most parts of the country. Another "low" appeared over the head Bay of Bengal on 11th. It moved westnorthwestwards and became well-marked over north Madhya Bharat and neighbourhood on the 13th. Weakening next day, it lay as a diffuse "low" over north Rajasthan and then merged into the seasonal trough. In association with this "low", strong to vigorous monsoon conditions prevailed over Madhya Pradesh, Madhya Bharat, Gujarat, Rajasthan and Saurashtra and Kutch. Narsinghpur (Madhya Pradesh) had 7" of rain and Baihar (Madhya Pradesh) and Godhra (Gujarat) 6" each on 12th, Naliya (Saurashtra) 10", Jaora (Madhya Bharat) 6" and Ahmedabad 4" on 13th, Erinpura (east Rajasthan) 11", Abu 9", Dharampur (Gujarat) and Sirohi (Rajasthan) 6" each on 14th. Newspapers reported collapse of several houses and damage to crops in north Gujarat. Train services were also reported to have been dislocated between Kotah and Mathura on the 15th and the 16th.

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In association with an accentuation of the monsoon trough and its extension into the west central Bay of Bengal on the 19th, widespread and locally heavy to very heavy rain occurred along the west coast and in Hyderabad and Rayalaseema; Khammameth recorded 6" and Ramagundam 5" on the 19th.

Three westerly waves moved through the extreme north of the country between the 19th and the 25th. In association with these, the Punjab-Kumaon hills received locally heavy to very heavy rain, Dharamsala recording 7" on the 24th.

The rainfall during the month was in large excess in Rajasthan, Gujarat, Saurashtra and Kutch, Deccan (Desh), Hyderabad, coastal Andhradesa and Rayalaseema, in moderate excess in west Uttar Pradesh, the Punjab (I), Jammu and Kashmir and west Madhya Pradesh and in slight excess in east Madhya Pradesh and the Konkan. It was in slight defect in West Bengal, Chota Nagpur and Malabar and south Kanara, in moderate defect in Bihar, east Uttar Pradesh, Tamilnad and Travancore-Cochin and normal over the rest of the country.

The mean maximum temperature was normal in northeast India, east Uttar Pradesh, Vindhya Pradesh, east Madhya Pradesh, Malabar and south Kanara and Travancore-Cochin and below normal elsewhere.

The mean minimum temperature was below normal in Rajasthan, Saurashtra and Kutch and normal elsewhere.

The mean relative humidity in the morning was in excess in the Punjab(I), Rajasthan, the central parts of the country, Gujarat, Saurashtra and Kutch, Deccan (Desh), Hyderabad and Rayalaseema and normal elsewhere.

The mean cloud amount in the morning was above normal in Jammu and Kashmir, Rajasthan, Madhya Bharat, Hyderabad and Tamilnad and normal elsewhere.

Table I contains the divisional and sub-divisional means of rainfall, temperature, humidity and cloud amount for the 13 chief political divisions and the 28 sub-divisions. The stations whose observations are used for preparing these means are given in the subsequent tables.

The highest maximum temperature given for any station in the accompanying tables is that recorded within the 24 hours ending at 0830 hrs. I. S. T. of the date noted in the succeeding column. Similarly the heaviest fall in 24 hours for any station denotes the amount recorded during the 24 hours ending at 0830 hrs. I. S. T. of the date given in the succeeding column.

POONA 5,

Dated the 3rd January, 1958. }

S. S. LAL,

for Director General of Observatories.

Errata to Monthly Weather Report for July 1956

Table	Page No.	Station	Hour	Column	For	Read
II	308	-	-	29	no squall	Line squall
		Cocatai	-	24	2	0
	309	Allahabad (Bamrauli)	-	7	-0.4	+0.4
	310	Mandi	-	13	2.54	2.84
	312	Nagapattinam	-	10	0.90	0.09
		Chitaldrug	-	12	-1.71	+1.71
	313	Katmandu	-	7	+1.6	-1.6
III	316	Imphal	1730	22	Blank	3
		-	-	Foot-note	(a) Mean of 31 days.	(a) Mean of 30 days.
	317	Chandbali	0830	6	+10.	+1.0
	318	Gaya	0230	3	Blank	373
		"	0530-2330	3	Blank	Dittos
		"	1730	4	Blank	996.6
		"	2330	4	99.6	999.6
	319	Bareilly	0830	12	Blank	-3
		Dehra Dun	0530	11	Blank	93
		"	0830	11	93	88
		"	1130	11	88	81
	320	Chandigarh	0830	22	3	8
		Jammu	0830	15	6.9	Blank
	321	-	-	4(Heading)	Stadard	Standard
		Jaisalmer	0830	5	972.0	972.5
		Jaipur	1130 & 1730	2	1730 & 1130	1130 & 1730
		Udaipur	1130	4	1000.1	1001.1
	322	Gwalior (P.B.O.)	1730	27	1	11
		Raipur	1130	22	0	1
	327	Arogyavaram	-	1	Arogyaarwam	Arogyavaram

Table	Page No.	Station	Ht. in Km.	Hour	Column	For	Read
IV	343	Port Blair	Surface	1430	D	2	231
	345	Visakhapatnam	3.0	0130 etc.	1	9.0	3.0
V	346	Nagpur	16.2	0830	V	52.5	55.2
-	347	First line	-	-	-	given in as	as given in
VI	349	New Delhi	-	-	Surf.Pr.	(975 mb.)	(977 mb.)

1	Rainfall (inches)	Percentage of normal	Mean maximum temperature °F	Mean minimum temperature °F	Relative humidity %		Cloud		1	Rainfall (inches)	Percentage of normal	Mean maximum temperature °F	Mean minimum temperature °F	Relative humidity %		Cloud		
					0830 hrs. I.S.T.	1730 hrs. I.S.T.	0830 hrs. I.S.T.	1730 hrs. I.S.T.						0830 hrs. I.S.T.	1730 hrs. I.S.T.	0830 hrs. I.S.T.	1730 hrs. I.S.T.	
																		6	7	8	9
Division																		
									Division—Contd.									
1. Assam (Including Manipur & Tripura).	15·71 -0·06	100	89·9 +0·4	77·2 0	85 0	78	6·1 -0·4	5·1	8. Madhya Bharat & Vindhya Pradesh	14·21 +0·18	101	86·2 -2·1	74·6 -1·4	88 +7	79	7·4 +1·1	7·3	
2. West Bengal	13·72 -2·39	85	88·5 -0·9	78·1 -0·6	84 0	80	6·1 -0·3	6·0	9. Madhya Pradesh	18·54 +4·06	128	84·4 -1·8	73·4 -0·8	89 +6	80	7·4 +1·0	7·4	
3. Orissa	11·89 -1·25	90	87·2 -1·0	77·8 -0·5	84 +2	81	6·8 +0·8	6·8	10. Bombay (Including Saurashtra & Kutch)	24·23 +6·72	138	83·0 -3·5	73·7 -1·5	89 +7	81	7·4 +0·8	7·2	
4. Bihar	8·90 -3·93	69	89·2 0	77·8 -0·4	83 +1	78	6·0 -0·2	6·2	11. Hyderabad	15·31 +8·08	212	83·1 -4·5	71·1 -1·4	87 +9	74	7·4 +1·5	7·4	
5. Uttar Pradesh	12·42 +0·12	101	90·8 -1·4	78·2 -0·9	82 +3	73	5·3 -0·1	5·4	12. Madras (Including Travancore-Cochin.)	7·79 +0·57	108	88·3 -3·1	76·2 -0·7	75 +1	67	6·7 +0·8	7·0	
6. Punjab (I) (Including PEPSU and Delhi)	10·44 +3·20	144	93·9 -3·5	79·5 -1·1	79 +8	65	4·8 +0·7	5·5	13. Mysore	9·12 +0·54	106	77·4 -3·9	67·1 -0·9	87 +5	73	6·7 0	6·8	
7. Rajasthan	12·90 +6·90	215	90·2 -4·9	76·9 -2·3	84 +12	69	6·1 +1·3	6·1	Mean of India	14·35 +2·72	123	87·0 -2·6	75·5 -1·1	84 +5	75	6·6 +0·7	6·6	
Sub-division									Sub-division—Contd.									
1. Bay Islands	14·69 -0·74	95	83·7 -0·1	75·1 0	85 +1	88	6·8 +0·2	7·3	15. Madhya Pradesh, East	19·25 +3·88	125	84·2 -0·9	73·4 -0·4	88 +6	81	7·3 +0·8	7·4	
2. Assam (Including Manipur & Tripura)	15·71 -0·06	100	89·9 +0·4	77·2 0	85 0	78	6·1 -0·4	5·1	16. Madhya Pradesh, West	18·10 +4·18	130	84·5 -2·4	73·4 -1·0	89 +7	80	7·5 +1·1	7·4	
3. West Bengal	13·72 -2·39	85	88·5 -0·9	78·1 -0·6	84 0	80	6·1 -0·3	6·0	17. Gujarat	22·33 +8·37	160	85·1 -4·3	75·5 -1·8	93 +8	83	7·7 +0·8	7·3	
4. Orissa	11·89 -1·25	90	87·2 -1·0	77·8 -0·5	84 +2	81	6·8 +0·8	6·8	18. Saurashtra and Kutch	12·48 +4·53	157	86·2 -4·3	76·2 -2·5	89 +8	81	7·1 +1·0	7·2	
5. Chota Nagpur	12·09 -1·54	89	87·8 -0·1	76·4 -0·6	84 +2	81	6·5 0	7·0	19. Konkan	36·02 +5·20	117	82·5 -2·2	75·7 -1·0	88 +3	86	7·6 +0·5	7·0	
6. Bihar	7·31 -5·13	59	90·4 +0·1	78·7 -0·3	83 +1	76	5·7 -0·4	5·6	20. Deccan (Desh)	21·24 +8·91	172	80·4 -3·7	69·7 -1·2	87 +8	77	7·3 +0·9	7·2	
7. Uttar Pradesh, East.	9·06 -3·41	73	91·3 -0·8	79·1 -0·3	82 +2	72	5·5 -0·1	5·5	21. Hyderabad, North	15·04 +6·96	186	82·6 -3·8	70·1 -1·5	90 +10	77	7·5 +1·5	7·5	
8. Uttar Pradesh, West.	16·19 +4·09	134	90·3 -2·2	77·2 -1·5	83 +5	73	5·1 -0·1	5·4	22. Hyderabad, South	15·58 +9·21	245	83·5 -5·1	71·9 -1·3	85 +9	72	7·3 +1·5	7·3	
9. Punjab (I) (Including PEPSU and Delhi).	10·44 +3·20	144	93·9 -3·5	79·5 -1·1	79 +8	65	4·8 +0·7	5·5	23. Coastal Andhradesa	10·65 +5·57	210	88·4 -4·0	77·5 -1·3	79 +3	72	6·8 +0·5	7·0	
10. Jammu & Kashmir	5·61 +1·36	132	79·8 -2·8	61·9 +0·5	73 +4	47	5·6 +1·9	5·0	24. Rayalaseema	8·16 +4·45	220	87·3 -6·3	75·7 -0·9	76 +7	67	7·3 +1·1	7·1	
1. Rajasthan, West	7·90 +4·81	256	93·8 -5·4	78·9 -2·1	82 +14	64	5·1 +1·1	5·4	25. Tamilnad	1·62 -0·58	74	90·9 -3·0	76·8 -0·3	67 -1	57	6·3 +1·4	7·1	
2. Rajasthan, East (Including Ajmer)	17·90 +8·99	201	87·3 -4·5	75·2 -2·6	86 +11	74	6·8 +1·4	6·6	26. Malabar and South Kanara	29·51 -6·17	83	82·3 -0·7	73·3 -0·9	91 +1	87	7·0 -0·1	6·8	
3. Madhya Bharat	13·92 +0·63	105	84·9 -3·2	73·8 -1·4	90 +7	79	7·6 +1·4	7·3	27. Mysore	9·12 +0·54	106	77·4 -3·9	67·1 -0·9	87 +5	73	6·7 0	6·8	
4. Vindhya Pradesh	14·69 -0·58	96	88·4 -0·3	75·8 -1·3	86 +6	79	7·0 +0·5	7·2	28. Travancore-Cochin	7·75 -7·79	50	83·1 -0·5	73·7 -0·5	85 -1	81	6·9 +0·2	6·9	

NOTE.—The entries in the second line for each division and sub-division indicate departures from normal.

Table with 27 columns: Division and Station, Hour of observation I.S.T., Height of barometer etc., Mean pressure in millibars (At station level, Departure from normal), Mean temperature in °F. (Dry bulb, Wet bulb, Dew point, Vapour pressure in mba.), Relative humidity %, Departure from normal, Cloud amount (Oktas) (Mean amount, Departure from normal, Mean wind speed miles per hour, 39 or more, 13 to 38, 1 to 12), Wind speed (m.p.h.), and No. of observations (Wind direction: N, NE, E, SE, S, SW, W, NW, Calm).

Division and Station.	Hour of observation I.S.T.	Height of barometer station above mean sea level in feet.	Mean pressure in millibars.			Mean temperature in °F.			Vapour pressure in mbs.	Relative humidity %.	Departure from normal.	Cloud amount (Oktas).		Mean wind speed, miles per hour.	Wind speed			No. of observations.									
			At mean sea level or height in g.p.m. of nearest standard isobaric level.	At station level.	Departure from normal.	Dry bulb.	Wet bulb.	Dew point.				Mean amount.	Departure from normal.		39 or more.	13 to 38.	1 to 12.	Wind direction.									
																		N	NE	E	SE	S	SW	W	NW	Calm.	
<p>Hill Stations including Kashmir—Contd.</p> <p>Kodaikanal 0830 7688 3126.9 769.4 +0.4 54.5 51.1 48.6 11.6 81 +4 7.2 +1.4 11.2 0 14 16 5 0 0 0 0 0 4 6 15 1</p> <p>1130 " 3136.7 769.7 .. 59.0 54.4 51.2 12.9 76 .. 7.2 .. 10.7 0 9 21 3 0 0 0 0 0 1 4 22 1</p> <p>1730 " 3114.3 768.1 .. 55.8 53.9 52.4 13.6 89 .. 7.6 .. 10.5 0 11 18 5 0 0 0 0 0 1 2 21 2</p> <p>Ootacamund. 0830 7378 1495.4 777.8 +0.3 53.6 52.2 51.4 12.9 88 —1 6.6 —0.5 8.2 0 2 29 0 0 0 0 0 0 1 28 2 0</p> <p>1730 " 1470.4 776.6 .. 55.1 53.2 52.6 13.1 88 .. 7.3 .. 5.7 0 0 28 0 0 0 0 0 0 3 22 3 3</p> <p>Coonoor 0830 5730 1487.5 825.1 .. 64.0 56.8 52.2 13.2 66 —3 5.7 —0.7 6.4 0 2 28 1 0 1 0 6 8 5 9 1</p> <p>Sikkim.</p> <p>Lachen 0830 56.3 54.8 54.0 14.1 91</p> <p>Tibet</p> <p>Yatung (Chumbi) . . . 0830 58.8 57.3 56.1 15.6 93 +6 0.2 —4.1</p> <p>Lhasa 0830 12090 3110.5 655.0 .. 60.3 52.7 47.7 11.1 64 .. 3.3 .. 1.1 0 0 9 0 1 4 2 0 2 0 0 22</p> <p>Ceylon.</p> <p>Colombo 0830 24 1010.3 1009.5 +0.2 79.9 75.8 73.8 28.6 82 —2 7.0 +0.8 7.0 0 2 28 0 0 0 1 1 11 16 1 1</p> <p>1730 " 1008.2 1007.4 .. 81.0 76.0 73.6 28.4 78 .. 6.5 .. 8.9 0 2 29 0 0 0 0 0 0 20 10 1 0</p> <p>Trincomalee 0830 11 1007.9 1007.5 +0.6 81.1 74.1 70.7 25.6 70 —6 6.5 +2.4 12.7 0 20 11 0 0 0 0 2 29 0 0 0</p> <p>1730 " 1005.4 1005.0 .. 85.8 76.3 70.9 26.7 64 .. 6.7 .. 10.3 0 11 20 4 3 1 1 1 19 2 0 0</p> <p>Batticaloa 0830 9 1008.1 1007.8 .. 81.5 74.2 70.3 25.6 70 .. 5.3 .. 5.7 0 0 30 1 2 0 0 1 8 12 6 1</p> <p>1730 " 1005.7 1005.4 .. 85.1 77.4 73.6 28.6 69 .. 5.9 .. 9.9 0 11 19 1 3 5 13 3 0 4 1 1</p> <p>Hambantota. 0830 50 1009.2 1007.4 +0.3 79.5 75.3 72.9 28.0 81 —4 4.5 +0.5 14.1 0 24 7 0 0 0 0 0 0 10 21 0 0</p> <p>1730 " 1006.6 1004.8 .. 82.4 75.4 71.2 26.9 72 .. 5.4 .. 18.0 0 29 2 0 0 0 0 0 0 13 18 0 0</p> <p>Mannar 0830 12 1008.5 1008.1 .. 81.1 76.1 73.9 28.5 79 .. 6.5 .. 8.2 0 1 30 0 0 1 0 8 22 0 0 0</p> <p>1730 " 1005.9 1005.5 .. 82.6 76.8 73.9 28.8 76 .. 6.5 .. 9.6 0 7 24 0 0 0 0 4 27 0 0 0</p> <p>Hydrometeorological Observatories</p> <p>Damodar Catchment</p> <p>Bokaro 0830 784 1000.8 974.3 .. 81.2 77.3 75.6 30.2 83 .. 6.6 .. 4.6 0 2 26 1 1 10 12 1 2 1 0 3</p> <p>1730 " 997.8 971.4 .. 82.9 77.4 75.1 29.6 78 .. 7.0 .. 5.2 0 2 23 1 2 6 15 1 0 0 0 6</p> <p>Hazaribagh 0830 2019 1000.4 933.2 .. 77.6 74.1 72.4 27.3 85 .. 6.5 .. 6.4 0 2 25 0 0 16 4 1 3 2 1 4</p> <p>1730 " 996.9 930.1 .. 77.7 74.6 73.2 28.0 86 .. 6.3 .. 6.1 0 4 23 0 1 15 6 0 3 1 1 4</p> <p>Ramgarh 0830 80.6 76.9 75.4 29.9 84 .. 7.1 .. 3.1 0 0 24 0 1 15 3 0 1 4 0</p> <p>1730 " 82.3 77.4 75.3 29.9 80 .. 7.2 .. 3.3 0 0 26 1 1 19 4 0 0 0 1</p> <p>Paunchet Hills . . 0830/ 83.8 78.8 76.5 31.4 79 .. 7.7 .. 5.6 0 3 27 1 5 13 7 1 2 0 1</p> <p>1730 " 83.7 78.6 76.5 31.1 79 .. 7.5 .. 5.7 0 3 27 1 3 18 7 0 0 0 1</p> <p>Mahanadi Catchment</p> <p>Baramul 0830 210 1001.1 993.9 .. 80.2 77.7 76.6 31.1 89 .. 7.5 .. 1.5 0 0 17 0 6 0 0 4 5 1 1 1</p> <p>1730 " 998.5 991.3 .. 81.0 78.5 77.6 32.2 89 .. 7.4 .. 1.0 0 0 12 0 0 0 0 2 6 2 2 1</p> <p>Hirakud 0830 522 1000.9 983.2 .. 81.3 77.0 75.2 29.1 82 .. 6.0 .. 4.1 0 0 30 1 3 5 2 3 11 3 2</p> <p>1730 " 997.8 980.2 .. 83.6 77.9 75.5 30.8 78 .. 7.0 .. 3.0 0 0 23 1 2 2 0 2 9 5 2</p> <p>Sonepur 0830 82.3 77.7 75.1 30.2 80 4.7 0 4 12 2 1 0 0 0 10 3 0 1</p> <p>Ginabagar 0830 79.3 75.2 72.7 27.8 82</p> <p>Narbadra Catchment</p> <p>Punasa 0830 76.5 74.5 73.5 28.4 90 .. 7.5 .. 4.6 0 1 29 0 0 0 0 4 11 14 1</p> <p>1730 " 81.1 76.1 73.6 28.5 79 .. 6.8 .. 5.2 0 1 26 1 0 0 0 3 10 13 0</p> <p>Bagra Tawa 0830 76.4 74.2 73.0 27.9 89 .. 7.2 .. 6.5 0 0 31 0 0 0 0 5 18 8 0</p> <p>1730 " 79.1 75.7 74.1 28.8 84 .. 6.9 .. 5.2 0 0 28 0 0 0 1 2 20 5 0</p> <p>Thikri 0830 78.8 76.3 75.2 29.9 90 .. 7.0</p> <p>Tapti Catchment</p> <p>Nandurbar 0830 75.8 73.9 72.9 27.7 91</p> <p>Sabarmati Catchment</p> <p>Jhadol 0830 75.9 72.8 71.2 26.4 86</p> <p>Dharoi 0830 77.6 75.1 74.0 28.6 89</p> <p>1730 " 80.8 76.9 74.9 29.6 82</p>																											

*Observations for 30 days.

MONTHLY MEANS OF UPPER WINDS, JULY 1956

During the month, observations of velocity and direction of upper winds were made at 52 stations in India. Out of these, at 44 stations all the observations were taken by means of pilot balloons and at 8 stations some observations were made by means of pilot balloons while the other observations by the radiowind method. Particulars of the stations, their co-ordinates and the approximate times of the regular pilot balloon and rawin ascents at each station are given in the table. All radiowind ascents have been indicated by means of an asterisk (*) against the scheduled hours.

Data from ascents made at the scheduled time or within two hours on either side of the scheduled times of regular observations have been used for averaging.

Data up to 9·0 km. a.m.s.l. are given under Table IV and data above 9·0 km. a.m.s.l. under Table V.

In Tables IV and V :

n—represents the number of observations,

V—represents the mean wind speed in knots irrespective of direction,

v—represents the resultant mean velocity in knots,

D—represents the direction of the resultant mean wind in degrees East of North.

Mean and resultant winds are given in this publication for the following heights :

Surface, 0·15 km. a.g., 0·3, 0·6, 0·9, 1·5, 2·1, 3·0, 4·5, 5·4, 6·0, 7·2, 9·0, 10·5, 12·0, 14·1, 16·2, 18·0, 20·0, 23·0, 26·0, 30·0 and 35·0 km. a.m.s.l. Of these the levels 1·5, 3·0, 5·4, 7·2, 9·0, 12·0, 14·1 and 16·2 km. a.m.s.l. are considered as the best approximations to the standard pressure levels 850, 700, 500, 400, 300, 200, 150 and 100 mb. respectively.

PARTICULARS OF PILOT BALLOON AND RAWIN STATIONS IN INDIA

Station	Lat. N	Long. E	Height of Anemometer head a.m.s.l. in metres	Date of opening	Approximate times of flight (IST)		
Agartala	23°53'	91°15'	17	28th November, 1951	0130	0730	1430
Ahmedabad	23°04'	72°38'	61	19th May, 1928	0130	0730	1430
Amausi	26°45'	80°53'	126	20th November, 1950	0130	0730	1430
Ambala	30°23'	76°46'	282	1st April, 1941	0130	0730	1430
Anantapur	14°41'	77°37'	364	12th February, 1946		0730	1430
Asansol	23°41'	86°59'	126	29th May, 1942	0130	0730	1430
Baghdogra	26°38'	88°19'	138	7th June, 1953		0730	1430
Bairagarh	23°17'	77°21'	524	26th February, 1943	0130	0730	1430
Bamrauli	25°27'	81°44'	103	28th February, 1930	0130	0830*	1430
Bangalore	12°58'	77°35'	936	19th May, 1915	0130	0730	1430
Bareilly	28°22'	79°24'	180	12th January, 1943		0730	1430
Begumpet	17°27'	78°28'	542	1st September, 1929	0130	0730	1430
Bhagalpur	25°14'	86°57'	60	19th May, 1950		0730	1430
Bhubaneshwar	20°15'	85°50'	45	5th December, 1942	0130	0730	1430
Bhuj	23°15'	69°48'	111	14th September, 1937	0130	0730	1430
Bikaner	28°00'	73°18'	228	8th October, 1946	0130	0730	1430
Chikalhana	19°51'	75°24'	583	7th October, 1951	0130	0730	1430
Cochin†	09°58'	76°14'	3	16th March, 1942	0130	0730	1430
Darjeeling	27°03'	88°16'	2115	21st May, 1956		0730	1430
Dum Dum	22°39'	88°27'	11	14th May, 1921	0130	0830*	1430
Gadag	15°25'	75°38'	650	3rd May, 1943	0130	0730	1430
Gauhati	26°05'	91°43'	55	12th March, 1955	0130	0830*	1430
Gaya	24°45'	84°57'	113	19th March, 1937	0130	0730	1430
Gopalpur	19°16'	84°53'	24	15th February, 1946	0130	0730	1430
Gorakhpur	26°45'	83°22'	83	5th January, 1943		0730	1430
Gwalior	26°14'	78°15'	211	7th May, 1938	0130	0730	1430
Imphal	24°51'	93°58'	798	8th March, 1952		0730	1430
Jabalpur	23°10'	79°57'	402	30th July, 1928	0130	0730	1430
Jagdalpur	19°05'	82°02'	561	25th March, 1948	0130	0730	1430
Jaipur	26°49'	75°48'	387	6th June, 1953		0730	1430
Jamshedpur	22°49'	86°11'	144	23rd July, 1942		0730	1430
Jharsuguda	21°55'	84°05'	234	1st May, 1944	0130	0730	1430
Jodhpur	26°18'	73°01'	228	15th October, 1934	0130	0830*	1430
Madras	13°00'	80°11'	29	8th April, 1926	0130	0830*	1430
Mangalore	12°52'	74°51'	40	4th June, 1928	0130	0730	1430
Maşulipatnam	16°11'	81°08'	9	8th April, 1942	0130	0730	1430
Minicoy	08°18'	73°00'	14	14th April, 1941	0130	0730	1430
Mohanbari	27°29'	59°01'	110	1st June, 1948	0130	0730	1430
Mussoorie	30°27'	78°05'	2050	3rd November, 1955		0730	1430
Nagpur	21°09'	79°07'	316	23rd April, 1943	0130	0830*	1430
New Delhi	28°35'	77°12'	227	20th October, 1936	0130	0830*	1430
Poona	18°32'	73°51'	560	5th January, 1925	0130	0730	1430
Port Blair	11°40'	92°43'	92	29th October, 1945	0130	0730	1430
Raipur	21°14'	81°39'	308	15th July, 1944	0130	0730	1430
Santacruz	19°05'	72°53'	12	14th May, 1933	0130	0830*	1430
Tezpur	26°37'	92°47'	78	12th August, 1932	0130	0730	1430
Tiruchirapalli	10°46'	78°43'	95	22nd June, 1936	0130	0730	1430
Trivandrum	08°29'	76°57'	72	8th December, 1928	0130	0730	1430
Udaipur	24°35'	73°42'	587	24th June, 1947	0130	0730	1430
Vengurla	15°52'	73°38'	8	22nd November, 1941	0130	0730	1430
Veraval	20°54'	70°22'	16	13th October, 1941	0130	0730	1430
Visakhapatnam	17°43'	83°14'	9	24th September, 1928	0130	0730	1430

*Rawin ascents.
†Naval Meteorological Office.

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

July 1956

Station.	AGARTALA												AHMEDABAD															
	0130				0730				1430				0130				0730				1430							
Time in I. S. T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . .	31	3.7	3.1	153	31	4.8	4.3	135	31	4.2	2.8	176	31	7.4	6.3	224	31	6.1	5.0	221	31	8.3	7.3	219				
0.15 a. g.	23	13.0	11.9	162	24	9.5	9.0	141	30	7.9	4.9	184	26	14.6	12.9	248	28	11.9	9.8	240	27	10.4	8.9	242				
0.3 a.m.s.l.	23	14.4	13.3	165	24	13.7	12.4	157	30	9.4	7.0	179	26	18.2	16.1	250	27	14.2	11.9	248	27	12.1	10.5	245				
0.6 "	23	16.2	15.1	171	24	14.3	13.8	160	30	11.0	9.2	176	21	21.4	19.5	265	16	18.9	16.3	272	25	14.0	12.3	255				
0.9 "	20	13.7	12.2	173	23	13.6	12.0	160	30	12.5	10.9	178	14	17.6	15.3	270	10	19.6	16.1	273	21	15.5	13.5	258				
1.5 "	17	11.2	9.0	165	22	13.6	9.9	145	27	14.0	11.3	171	7	10.4	3.7	282	6	13.8	10.2	270	10	17.2	14.7	267				
2.1 "	16	10.3	8.0	155	20	13.4	9.8	140	21	16.0	11.7	171	3	12.7	3.1	132	2	18.5	5.6	234	2	11.0	10.2	259				
3.0 "	12	10.3	9.6	144	17	13.2	8.7	131	15	12.3	5.2	154	1	3.0	3.0	125	1	17.0	17.0	065								
4.5 "	1	19.0	19.0	050	9	7.4	4.5	102	9	12.3	4.3	125																
5.4 "					6	9.8	8.9	109	5	15.0	4.5	102																
6.0 "					5	7.6	5.7	115	3	15.7	13.4	103																
7.2 "					1	13.0	13.0	115	1	10.0	10.0	090																
9.0 "					1	18.0	18.0	095																				

Station.	AMAUSI												AMBALA															
	0130				0730				1430				0130				0730				1430							
Time in I. S. T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . .	31	3.0	2.5	082	31	5.7	4.6	092	31	8.6	6.5	100	31	5.9	4.5	114	31	4.7	3.7	108	31	5.0	2.9	117				
0.15 a. g.	31	11.6	9.2	107	29	9.9	7.9	100	29	10.2	8.1	093	30	13.2	11.4	126	30	10.8	8.8	121	30	9.8	5.1	110				
0.3 a.m.s.l.	31	12.0	9.5	111	29	10.5	8.1	107	29	10.4	8.2	094	30	6.9	5.4	113	30	5.8	4.5	113	30	6.3	3.4	119				
0.6 "	31	14.9	13.0	116	27	13.6	11.6	117	29	11.0	9.1	104	30	14.1	12.6	134	29	13.1	8.0	119	30	10.1	6.9	125				
0.9 "	31	14.1	13.1	119	24	16.0	14.3	116	28	11.5	8.5	107	30	14.3	12.9	137	28	13.1	11.0	143	29	9.2	7.0	133				
1.5 "	31	12.7	11.3	116	18	14.1	12.3	107	24	12.7	9.8	114	28	11.8	9.4	137	24	11.4	7.2	142	25	11.1	7.4	137				
2.1 "	29	10.3	8.9	110	16	12.9	9.9	100	17	13.2	11.1	111	27	10.9	5.3	122	20	11.2	3.2	076	20	10.5	5.4	134				
3.0 "	22	9.6	7.7	110	15	12.2	10.9	095	11	10.6	8.9	108	21	9.5	3.0	053	15	10.7	4.6	060	15	10.9	3.4	134				
4.5 "					9	9.7	9.8	086	7	10.5	8.6	111	3	7.3	6.9	324	9	7.4	3.9	106	11	10.0	3.5	105				
5.4 "					7	9.9	8.7	097	3	21.3	21.0	114	2	3.0	0.8	170	8	8.6	4.4	088	9	9.9	6.2	133				
6.0 "					6	10.1	9.5	110	1	29.0	29.0	100	2	7.0	3.3	138	5	6.8	3.2	014	7	9.4	4.7	139				
7.2 "					1	10.0	10.0	070					1	13.0	13.0	090	4	7.8	4.3	132	4	19.2	10.8	144				
9.0 "																	2	11.5	11.5	183	1	4.0	4.0	190				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9·0 Km. above mean sea level

July 1956

Station.	ANANTAPUR								ASANSOL								BAGHDOGRA							
	0730				1430				0130				0730				1430				0730			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	
Surface . .	31	8·2	8·0	262	31	13·6	12·6	280	31	3·9	2·7	115	31	4·2	3·4	107	31	5·0	4·3	104	31	4·1	3·3	01
0·15 a. g.	30	15·6	15·3	259	30	19·5	18·6	270	28	7·1	7·0	132	28	9·1	6·5	123	30	11·0	9·4	105	28	8·4	6·4	01
0·3 a.m.s.l.									28	11·2	7·9	133	28	9·3	6·6	122	30	11·2	9·7	106	28	8·3	6·2	01
0·6 „	30	19·7	19·4	259	30	21·2	20·4	270	25	13·4	9·7	158	25	11·3	6·9	136	30	12·6	11·0	112	28	10·4	7·6	01
0·9 „	30	27·5	26·8	274	30	24·5	23·9	273	19	13·3	9·3	159	23	12·5	7·0	133	28	13·0	10·7	116	26	11·2	8·9	01
1·5 „	30	30·6	29·6	286	30	26·1	25·4	279	18	12·8	8·0	152	16	12·6	8·9	108	19	15·2	12·9	120	21	12·2	10·9	01
2·1 „	23	28·6	27·8	286	26	26·9	26·1	283	14	11·9	7·9	124	12	10·3	8·5	105	12	16·0	14·4	117	15	13·7	10·1	01
3·0 „	18	24·6	24·3	286	14	25·9	24·8	293	6	10·1	9·7	104	7	8·4	7·9	083	4	8·7	4·8	106	12	13·5	12·3	11
4·5 „	7	16·6	15·4	277	3	18·7	17·8	308	2	10·5	10·1	084	6	10·2	9·8	100	3	11·3	5·8	102	7	12·3	12·0	01
5·4 „	6	13·7	11·0	286					1	8·0	8·0	110	5	10·6	9·5	097	3	14·0	4·1	130	4	18·5	17·2	01
6·0 „	3	18·3	15·9	283					1	13·0	13·0	096	3	9·7	5·6	104	2	14·0	14·0	062	2	22·0	20·3	01
7·2 „													2	13·0	12·0	103					1	8·0	8·0	01
9·0 „																					1	6·0	6·0	01

Station.	BAGHDOGRA				BAIRAGARH								BAMRAULI											
	1430				0130				0730				1430				0130			0830*				
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	
Surface . .	31	4·3	2·8	094	31	7·1	6·7	265	31	9·2	8·0	270	31	9·6	8·3	271	31	3·1	1·1	088	31	4·0	3·4	01
0·15 a. g.	29	6·6	4·1	109	26	14·6	12·8	267	23	14·0	12·4	272	28	13·8	12·1	272	28	10·3	5·5	096	28	4·6	3·1	01
0·3 a.m.s.l.	29	6·7	4·4	110													28	11·2	6·3	093	28	5·0	3·4	01
0·6 „	29	7·3	4·8	097	26	13·4	12·0	267	24	13·3	11·5	268	28	13·0	12·0	267	27	12·8	8·8	098	27	6·9	3·9	01
0·9 „	29	7·9	6·0	094	21	17·0	15·7	272	7	17·4	16·3	271	27	13·3	11·6	275	26	11·7	8·2	100	24	8·7	5·0	11
1·5 „	25	10·8	9·0	102	16	12·6	10·9	284	3	14·0	13·1	271	17	10·2	8·3	280	22	9·2	6·3	097	24	10·3	7·2	11
2·1 „	22	12·7	11·5	102	12	7·1	2·9	270	3	9·7	9·6	271	10	7·8	3·6	279	19	6·2	4·2	109	22	11·7	9·2	11
3·0 „	15	11·7	11·1	103	6	5·5	3·7	120	1	2·0	2·0	265	6	7·8	1·8	273	15	6·3	3·6	100	21	13·2	10·8	11
4·5 „	5	8·2	7·8	097					1	5·0	5·0	200	3	10·3	6·8	198	1	3·0	3·0	115	18	12·1	11·0	11
5·4 „	1	11·0	11·0	255					1	3·0	3·0	315	2	10·0	2·7	103					18	14·5	10·9	01
6·0 „	1	15·0	15·0	240									2	10·5	4·7	097					17	14·9	11·5	01
7·2 „													1	11·0	11·0	095					16	16·5	14·3	01
9·0 „													1	20·0	20·0	065					9	17·3	15·9	01

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9·0 Km. above mean sea level

July 1956

Station.	BAMRAULI								BANGALORE								BAREILLY							
	1430				2030*				0130				0730				1430				0730			
	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . .	31	6·2	3·9	077	31	3·9	2·5	095	31	10·0	9·3	265	31	10·4	10·0	266	31	13·9	13·4	278	31	3·8	3·3	100
1·5 a. g.	31	10·8	7·4	082	27	5·7	3·7	085	29	17·0	16·6	261	29	15·9	15·5	262	31	20·8	20·1	274	29	10·3	9·2	114
3 a.m.s.l.	31	10·7	7·6	084	27	6·4	4·1	083									29	9·2	8·1	111				
6 "	31	10·3	7·2	087	27	9·7	6·9	089									26	14·5	12·8	126				
9 "	31	10·8	8·0	097	27	12·9	9·4	099									24	15·7	13·6	125				
15 "	27	11·9	8·6	108	27	12·0	9·2	107	22	27·5	26·7	276	20	28·7	28·2	276	28	24·9	24·2	276	21	17·7	15·0	118
21 "	18	10·0	7·0	115	27	12·1	9·3	111	8	23·4	22·9	295	11	32·0	31·3	285	19	24·7	23·8	282	19	17·1	12·7	111
30 "	12	7·7	4·0	123	27	11·6	9·2	112	3	12·3	11·2	264	6	21·8	21·7	303	4	24·0	23·2	300	15	14·4	10·1	112
35 "	7	9·1	6·5	091	26	14·5	13·0	100					2	10·0	9·4	320					12	8·4	6·6	088
40 "	1	11·0	11·0	175	26	16·9	15·1	092					1	12·0	12·0	005					9	8·3	6·1	089
50 "					25	17·5	16·4	088					1	9·0	9·0	015					8	11·5	10·2	091
62 "					24	16·3	14·9	084													5	14·0	13·4	097
70 "					17	16·5	14·8	081													5	17·4	16·9	089

Station.	BAREILLY				BEGUMPET								BHAGALPUR											
	1430				0130				0730				1430				0730				1430			
	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . .	31	4·4	3·5	094	31	12·7	11·7	280	31	12·5	11·8	280	31	15·3	14·2	284	31	4·0	3·2	102	31	4·9	4·2	091
1·5 a. g.	30	8·8	7·3	103	21	18·3	17·4	269	22	17·9	17·0	274	28	20·6	19·0	283	28	10·3	8·1	119	29	11·1	9·8	088
3 a.m.s.l.	30	8·3	6·7	102													28	11·3	8·7	127	29	11·7	10·5	090
6 "	30	10·1	8·3	113	21	13·3	12·8	267	22	13·6	13·0	273	28	17·8	16·4	283	27	12·8	9·9	125	27	12·5	11·7	099
9 "	30	11·2	9·2	116	21	24·9	24·1	279	22	24·4	23·4	286	28	20·4	18·9	285	23	12·2	10·8	111	24	13·9	13·0	107
15 "	25	13·3	9·6	125	17	28·5	27·6	284	12	33·5	32·7	294	21	22·5	21·5	289	16	11·7	11·1	106	18	15·5	14·1	113
21 "	20	14·3	9·3	133	12	28·7	27·2	286	12	30·4	29·7	294	13	27·2	25·5	289	11	8·4	6·8	102	12	11·0	9·3	121
30 "	16	13·4	8·5	132	4	13·5	10·1	284	10	21·1	19·7	301	1	18·0	18·0	275	9	6·8	4·9	098	8	8·3	6·6	112
45 "	12	9·3	3·9	112													6	10·3	9·8	112	5	12·8	12·5	069
54 "	9	12·0	3·8	143													3	10·3	10·1	106	3	11·7	11·6	063
60 "	9	14·0	5·6	115													1	15·0	15·0	100	1	17·0	17·0	085
72 "	5	14·6	13·4	094																				
80 "	2	4·5	3·5	008																				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds upto 9.0 Km. above mean sea level

July 1956

Station	BHUBANESHWAR												BHUJ															
	0130				0730				1430				0130				0730				1430							
Time in I.S.T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	5.1	2.3	252	31	5.4	2.1	210	31	8.8	3.5	190	31	6.2	5.8	233	31	6.0	5.1	233	31	8.2	7.7	23				
0.15 a.g.	22	11.2	5.1	225	25	8.9	1.9	275	27	10.8	1.7	192	30	18.7	17.5	242	29	15.5	14.1	240	31	18.5	17.8	24				
0.3 a.m.s.l.	22	12.0	6.1	220	25	10.6	2.4	255	27	11.7	2.6	182	30	20.1	19.2	246	29	17.5	16.1	243	31	19.5	18.8	24				
0.6 "	22	12.3	6.0	228	21	11.7	2.6	236	27	13.9	1.6	162	29	25.1	23.7	251	26	24.7	22.9	253	31	23.3	22.2	23				
0.9 "	21	12.6	5.9	244	18	13.3	3.4	252	24	13.9	1.1	052	29	22.5	20.9	253	20	23.4	21.4	251	25	22.0	20.2	23				
1.5 "	18	12.8	3.1	227	15	11.1	3.7	256	18	14.3	3.8	351	19	14.8	12.0	258	14	15.4	12.1	262	14	15.5	11.8	23				
2.1 "	13	11.2	6.5	176	11	10.5	3.2	228	11	11.2	2.8	023	8	7.6	6.7	254	8	11.7	11.3	263	4	14.0	0.8	00				
3.0 "	8	9.7	8.6	126	9	10.5	3.7	240	5	11.6	7.2	323	8	6.1	1.2	321	3	7.3	5.2	249	2	13.0	11.7	00				
4.5 "	1	6.0	6.0	075	5	8.0	4.3	172					2	12.0	12.0	075	2	13.0	4.9	189	1	21.0	21.0	00				
5.4 "					3	8.0	5.8	199									2	10.5	6.7	263	1	25.0	25.0	00				
6.0 "					3	8.7	6.9	198									2	13.5	7.9	276								
7.2 "					2	11.5	7.9	120																				
9.0 "																												

Station	BIKANER												CHIKALTHANA															
	0130				0730				1430				0130				0730				1430							
Time in I.S.T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	4.9	3.5	196	31	3.7	2.4	210	31	4.5	2.0	161	31	10.1	9.6	270	31	9.4	8.9	269	31	15.3	14.1	2				
0.15 a.g.	31	14.7	9.9	205	31	9.0	4.3	208	31	9.6	4.9	158	27	18.1	17.3	268	24	14.9	14.4	268	27	21.2	19.7	2				
0.3 a.m.s.l.	31	12.5	8.1	195	31	7.7	3.4	198	31	8.9	4.3	156																
0.6 "	31	16.0	11.1	208	31	11.4	4.2	234	31	10.0	4.5	160																
0.9 "	31	14.9	8.6	213	31	11.1	3.3	217	30	10.6	4.3	155	27	22.0	21.1	276	24	19.8	19.0	278	27	20.5	19.3	2				
1.5 "	28	10.4	3.5	147	28	9.8	5.2	121	30	10.8	3.1	134	24	27.7	26.2	281	21	28.3	27.2	285	26	23.3	22.2	2				
2.1 "	24	10.3	6.8	116	27	12.2	3.4	222	25	11.4	6.9	101	15	26.1	24.6	282	14	27.0	25.7	280	14	27.9	26.5	2				
3.0 "	17	12.7	8.9	100	27	13.3	10.7	095	12	12.4	9.6	095	3	9.3	9.0	326	8	17.7	17.4	293	3	16.3	16.1	2				
4.5 "	2	11.5	7.7	031	18	12.7	8.8	085	5	8.6	3.8	051					3	10.7	10.6	288	1	7.0	7.0	2				
5.4 "	1	23.0	23.0	010	12	10.2	5.6	103	4	7.3	1.7	038					1	7.0	7.0	305								
6.0 "	1	23.0	23.0	015	9	8.0	1.7	100	4	9.3	1.6	061					1	6.0	6.0	345								
7.2 "					5	7.8	7.3	115	3	7.3	4.9	114																
9.0 "									1	6.0	6.0	280																

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds upto 9.0 Km. above mean sea level

July 1956

Station.	COCHIN												DARJEELING								DUM DUM			
	0130				0730				1430				0730				1430				0130			
ne in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	2.5	1.8	326	31	2.6	1.5	325	31	7.2	6.6	297	31	0.7	0.4	066	31	0.6	0.3	149	31	4.6	3.5	134
15 a. g.	24	7.0	6.1	309	28	4.9	3.2	335	27	9.4	8.4	305	12	3.3	2.1	082	3	6.3	4.7	147	30	10.6	8.3	161
3 a. m. s. l.	24	9.3	8.5	306	28	8.8	8.0	307	27	12.4	11.9	303									29	12.5	9.8	169
5 "	24	12.6	12.0	303	28	13.1	12.3	303	27	16.1	15.7	303									27	14.5	12.0	175
9 "	23	14.1	13.6	305	27	15.0	14.7	302	27	18.6	18.1	304									25	14.0	11.4	169
13 "	18	16.0	15.8	303	23	17.0	16.7	302	22	21.5	21.4	307									21	14.6	11.8	159
17 "	9	16.8	16.7	300	20	16.8	16.8	301	20	21.4	20.9	304									16	11.6	9.6	152
21 "	4	16.5	16.4	295	6	16.0	15.6	291	11	22.2	21.4	298	11	7.0	5.7	108	2	5.0	4.5	073	11	8.7	7.8	135
25 "					1	15.0	15.0	260	3	14.6	14.6	302	9	8.4	8.1	102	2	8.5	8.5	108	3	14.3	14.2	111
29 "									1	14.0	14.0	290	8	9.5	7.5	093	1	15.0	15.0	095	1	19.0	19.0	090
31 "													7	10.3	6.0	111	1	12.0	12.0	085				
1 "													2	4.5	4.5	148								
3 "													1	12.0	12.0	135								

Station.	DUM DUM												GADAG											
	0830*				1430				2030*				0130				0730				1430			
ne in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	6.5	4.7	104	31	6.3	5.0	134	31	4.8	3.9	150	31	10.9	10.3	259	31	10.3	9.5	253	31	13.0	13.0	270
15 a. g.	30	10.8	4.8	095	31	12.4	10.4	145	24	13.1	11.1	163	25	22.3	22.0	258	28	21.8	21.7	254	30	24.7	24.3	263
3 a. m. s. l.	30	10.4	6.7	138	31	13.2	11.3	151	24	13.3	11.7	165												
5 "	28	12.4	8.0	147	29	14.7	12.4	146	24	14.5	12.3	164												
9 "	28	12.4	7.7	200	28	15.6	12.7	151	24	15.3	12.9	167	24	27.5	26.8	267	28	25.1	24.6	263	30	27.3	27.0	267
13 "	24	13.5	9.5	165	25	15.9	12.0	147	24	15.3	12.1	169	11	32.3	31.0	283	13	30.8	30.0	286	19	27.0	26.1	280
17 "	22	12.8	9.3	165	14	15.0	12.9	121	24	14.5	10.4	166	5	26.4	25.3	290	5	30.0	29.6	253	2	19.5	19.1	312
21 "	23	12.2	8.0	147	7	11.6	7.3	126	23	14.7	9.7	153	1	3.0	3.0	289	1	15.0	15.0	315	1	23.0	23.0	305
25 "	21	15.6	8.4	156	6	14.2	5.2	124	23	14.0	8.3	139					1	12.0	12.0	310				
29 "	20	15.7	9.8	155	3	11.7	7.1	177	24	12.7	6.0	134												
31 "	19	15.4	8.0	157	1	21.0	21.0	145	22	12.9	6.0	115												
1 "	18	14.2	9.4	140	1	20.0	20.0	140	21	11.5	6.5	102												
3 "	17	15.6	12.0	118					18	12.2	9.2	100												

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds upto 9.0 Km. above mean sea level

July 1956

Station.	GAUHATI												GAYA										
	0130				0830*				1430				2030*				0130				0730		
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface . . .	31	2.5	0.8	220	31	3.0	2.0	049	31	4.1	1.1	292	31	3.1	1.3	207	31	3.6	2.9	098	31	4.6	4.1
0.15 a. g. . .	24	6.2	3.0	231	31	4.5	2.8	050	28	7.1	1.1	297	29	5.0	1.5	227	30	12.2	9.5	119	31	8.9	6.0
0.3 a. m. s. l. . .	24	6.2	3.1	268	31	5.2	3.2	060	28	7.4	1.1	340	29	5.7	2.3	226	30	12.2	9.2	125	31	9.8	6.3
0.6 „ . . .	24	8.5	3.7	274	31	6.8	3.0	075	28	6.7	1.0	009	29	7.0	2.0	225	30	14.9	11.5	135	30	12.8	8.4
0.9 „ . . .	23	9.9	4.2	280	31	8.4	2.3	086	28	6.7	0.6	353	29	8.4	1.8	225	28	15.1	11.2	134	26	13.8	9.4
1.5 „ . . .	20	7.7	2.5	237	31	10.1	3.6	132	25	7.3	2.8	158	31	8.8	2.2	193	25	10.7	7.8	116	24	11.1	8.3
2.1 „ . . .	17	7.1	1.4	240	31	11.0	4.9	135	20	9.0	5.4	147	31	9.8	3.3	173	19	11.0	8.5	095	19	10.8	8.4
3.0 „ . . .	9	8.2	2.7	256	30	12.0	5.8	113	17	10.6	7.3	111	30	11.2	6.7	122	13	8.8	6.8	105	15	9.6	9.1
4.5 „ . . .	6	12.8	10.4	077	30	12.5	5.8	112	10	10.5	8.7	084	29	13.8	7.7	104					10	7.0	6.1
5.4 „ . . .	3	17.0	13.2	097	29	12.2	7.1	098	7	14.6	12.4	077	29	13.5	8.1	100					7	8.4	4.1
6.0 „ . . .	2	19.0	15.7	102	28	12.6	7.7	098	7	15.7	14.8	072	29	13.4	8.0	094					5	11.4	11.2
7.2 „ . . .					27	12.8	6.5	086	6	15.0	13.9	059	29	12.5	6.4	080					3	18.0	18.0
9.0 „ . . .					27	13.6	5.4	127	3	14.3	12.4	069	29	13.1	6.9	063					1	27.0	27.0

Station.	GAYA				GOPALPUR								GORAKHPUR										
	1430				0130				0730				1430				0730				1430		
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface . . .	31	8.7	6.4	100	31	5.0	3.2	232	31	4.8	2.9	238	31	8.2	5.6	193	31	4.6	4.1	092	31	4.9	3.7
0.15 a. g. . .	31	11.1	8.4	096	28	11.3	7.0	239	27	9.1	3.5	260	29	12.6	9.1	185	29	9.8	9.4	098	30	10.8	9.7
0.3 a. m. s. l. . .	31	11.2	8.5	094	28	11.8	7.6	239	27	10.6	4.0	264	29	11.9	7.9	190	29	10.7	10.3	103	30	11.5	10.7
0.6 „ . . .	31	11.1	8.9	095	27	11.7	7.2	252	27	11.1	4.0	262	29	11.5	3.7	216	26	13.5	12.9	111	30	12.2	11.7
0.9 „ . . .	31	11.7	9.9	098	27	13.0	8.0	262	27	12.1	5.6	289	28	11.8	3.8	280	26	14.7	14.2	109	30	12.4	11.7
1.5 „ . . .	26	14.2	12.5	109	24	17.0	10.1	275	25	15.4	8.9	293	27	14.5	8.4	293	21	14.3	13.3	101	26	14.6	13.7
2.1 „ . . .	19	15.8	14.8	115	19	13.9	7.0	269	19	14.7	7.3	293	23	13.5	6.0	300	19	15.3	14.5	105	20	14.1	12.7
3.0 „ . . .	11	8.5	6.4	096	9	13.3	7.1	245	12	11.2	3.5	003	20	12.7	2.0	287	13	9.0	8.0	109	12	11.9	9.7
4.5 „ . . .	5	10.2	3.8	117	2	12.5	12.0	078	7	13.3	3.2	066	14	11.6	2.3	170	8	8.5	8.3	095	7	13.4	12.7
5.4 „ . . .	3	11.3	7.4	086	1	17.0	17.0	080	5	14.6	6.9	069	11	9.5	4.0	170	7	8.9	7.7	090	2	14.0	14.7
6.0 „ . . .	2	7.0	5.1	080	1	15.0	15.0	070	5	17.0	9.8	088	10	8.3	5.1	187	4	11.3	10.4	096			
7.2 „ . . .	1	12.0	12.0	090					1	13.0	13.0	175	4	18.5	16.7	123	2	14.5	14.5	101			
9.0 „ . . .													4	16.5	16.0	101							

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds upto 9·0 Km. above mean sea level

July 1956

Station.	GWALIOR												IMPHAL								JABALPUR			
	0130				0730				1430				0730				1430				0130			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	2·4	0·2	210	31	2·5	0·5	144	31	3·8	0·9	158	27	2·4	1·2	157	30	5·0	2·9	208	31	2·8	2·2	244
0·15 a.g. . .	31	8·8	1·3	181	29	8·0	0·4	203	29	8·5	2·1	136	27	3·6	0·8	133	30	6·4	3·4	204	24	9·6	7·7	256
0·3 a.m.s.l. .	31	7·0	1·1	213	29	6·8	0·5	113	29	7·9	1·4	101												
0·6 ,, . . .	31	10·1	2·7	141	26	8·5	0·6	103	29	9·0	1·8	097									24	10·5	8·3	259
0·9 ,, . . .	29	10·1	3·5	130	21	8·4	2·5	108	28	9·1	3·2	097	27	3·2	1·0	118	30	6·0	3·0	211	22	11·9	8·6	277
1·5 ,, . . .	20	8·6	5·7	113	16	7·5	3·7	105	20	8·7	5·7	115	27	5·7	2·0	122	30	7·4	3·7	188	15	11·5	5·0	271
2·1 ,, . . .	18	9·2	6·0	104	15	9·1	5·8	089	18	8·9	6·9	111	22	8·0	4·6	118	24	9·4	2·6	187	12	11·4	4·1	157
3·0 ,, . . .	12	8·3	4·9	093	11	10·2	8·5	092	15	9·5	6·9	112	14	13·9	7·1	145	15	11·0	5·0	158	7	8·3	3·7	161
4·5 ,, . . .					6	10·5	8·9	077	7	12·6	10·0	101	5	8·2	2·6	119	1	6·0	6·0	070	2	13·0	12·7	074
6·4 ,, . . .					4	12·5	8·5	083	3	10·3	10·3	091	2	8·0	7·1	145					1	20·0	20·0	075
8·0 ,, . . .					3	9·7	5·6	058																
9·2 ,, . . .					3	9·7	7·9	071																
9·0 ,, . . .					2	16·0	5·9	057																

Station.	JABALPUR								JAGDALPUR								JAIPUR							
	0730				1430				0130				0730				1430				0730			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	3·3	2·5	250	31	4·1	2·6	259	31	2·0	1·8	241	31	2·6	2·1	258	31	3·6	2·1	254	31	4·5	1·2	005
0·15 a.g. . .	28	9·2	6·9	259	29	8·7	6·8	266	25	9·6	7·8	247	25	8·3	7·0	262	22	9·8	5·7	267	27	10·3	3·0	350
0·3 a.m.s.l. .																								
0·6 ,, . . .	28	10·6	8·1	265	29	9·5	7·5	268	25	5·7	4·7	239	25	5·2	4·3	259	21	7·8	4·8	267	27	12·0	3·4	355
0·9 ,, . . .	23	11·6	7·6	280	27	10·5	7·8	281	23	13·0	11·0	260	25	11·9	10·1	273	22	10·1	6·3	269	21	13·7	3·0	332
1·5 ,, . . .	11	11·9	9·6	272	20	10·4	4·9	294	17	16·3	13·9	277	13	15·7	14·2	292	18	11·8	5·6	301	19	10·2	1·7	130
2·1 ,, . . .	7	10·6	6·7	274	14	10·5	2·4	275	14	14·0	11·0	284	6	19·3	18·6	294	12	12·0	5·3	318	10	9·9	7·2	112
3·0 ,, . . .	4	8·7	5·6	094	9	8·5	2·8	333	8	9·4	3·0	287	1	20·0	20·0	295	6	9·8	8·2	075	9	8·4	6·6	102
4·5 ,, . . .	3	13·3	13·3	096	4	11·0	1·6	042	1	10·0	10·0	145	1	27·0	27·0	290	2	13·5	12·2	132	3	3·0	2·3	093
5·4 ,, . . .	2	9·5	9·1	087	2	10·5	3·9	100					1	22·0	22·0	295	2	19·0	18·5	115	2	8·0	3·2	135
6·0 ,, . . .	2	11·5	11·5	097	2	9·0	5·9	093					1	15·0	15·0	290	2	17·5	17·3	105	1	11·0	11·0	100
7·2 ,, . . .	2	15·5	14·7	100	1	4·0	4·0	050									2	20·5	19·5	106	1	12·0	12·0	090
9·0 ,, . . .	2	24·0	23·9	085	1	12·0	12·0	110									1	32·0	32·0	100				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds upto 9·0 Km. above mean sea level

July 1956

Station.	JAIPUR				JAMSHEDPUR								JHARSUGUDA											
	1430				0730				1430				0130				0730				1430			
Time in I. S. T.																								
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	
Surface . . .	31	4·7	0·2	354	31	2·9	1·8	089	31	5·3	3·9	099	31	3·9	1·6	178	31	3·7	0·5	350	31	5·4	0·8	
0·15 a. g. . .	30	8·7	0·4	002	29	6·8	3·9	109	29	9·7	7·2	101	23	8·0	3·0	152	25	7·0	0·4	095	27	8·9	1·5	
0·3 a. m. s. l. . .					29	7·0	3·5	117	29	10·0	7·3	104	23	9·4	3·2	151	25	8·2	0·4	145	27	9·0	1·2	
0·6 ,, . . .	30	9·8	1·1	344	29	10·3	3·7	147	29	9·9	7·5	106	23	12·3	4·7	168	25	9·0	0·3	072	27	9·7	0·3	
0·9 ,, . . .	29	9·9	1·8	358	23	11·1	3·7	155	28	10·9	8·1	109	22	13·1	5·5	159	19	9·8	3·0	063	27	10·3	0·9	
1·5 ,, . . .	28	10·7	2·5	047	19	10·0	3·4	155	21	13·0	8·8	109	17	8·7	3·9	129	14	10·3	7·1	074	23	11·4	5·2	
2·1 ,, . . .	17	9·8	2·6	315	17	10·0	3·6	132	17	12·4	7·9	102	13	10·0	6·2	105	14	10·5	7·7	082	18	12·5	4·6	
3·0 ,, . . .	10	7·4	1·7	275	15	7·9	2·5	088	10	12·3	5·0	281	9	9·8	6·8	134	13	10·5	6·7	089	15	11·9	4·6	
4·5 ,, . . .	4	9·3	1·7	098	11	7·6	2·0	105	3	15·0	4·5	219	2	13·5	13·3	088	5	7·4	3·4	114	6	8·7	3·2	
5·4 ,, . . .	4	10·5	3·3	075	8	10·6	3·9	129	1	15·0	15·0	265	1	15·0	15·0	090	4	8·7	2·2	187	2	10·5	9·8	
6·0 ,, . . .	3	12·3	2·4	105	6	13·7	7·1	087					1	15·0	15·0	090	2	7·0	4·7	274	2	8·5	7·9	
7·2 ,, . . .	2	13·0	3·0	280	4	13·7	9·8	090									1	6·0	6·0	220	1	5·0	5·0	
9·0 ,, . . .	1	9·0	9·0	065	2	20·0	18·8	090																

Station.	JODHPUR												MADRAS										
	0130				0830*				1430				2030*				0130			0830*			
Time in I. S. T.																							
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface . . .	31	4·9	4·1	226	29	6·0	3·8	235	31	7·3	4·6	211	26	6·9	5·3	215	31	8·1	7·3	249	31	9·3	9·0
0·15 a. g. . .	28	11·3	8·8	236	29	7·7	3·8	220	26	8·8	5·7	216	26	8·5	5·1	212	29	17·0	16·1	258	31	13·0	12·5
0·3 a. m. s. l. . .	28	8·7	6·5	210	29	7·1	3·7	222	26	9·1	5·9	211	26	8·0	5·6	219	29	19·9	19·2	265	31	16·0	15·4
0·6 ,, . . .	28	13·9	11·1	228	29	9·4	5·9	232	26	10·4	5·7	222	26	9·5	5·9	225	29	23·0	22·6	275	31	22·1	20·5
0·9 ,, . . .	25	13·2	9·7	229	29	11·7	6·9	235	25	10·8	5·1	223	26	11·0	6·2	230	29	24·7	24·3	282	31	28·5	26·4
1·5 ,, . . .	22	10·4	5·1	223	29	11·3	5·1	195	20	10·2	2·9	205	26	9·7	2·6	218	28	23·8	23·4	287	31	29·1	28·4
2·1 ,, . . .	14	5·9	3·2	104	29	10·2	4·6	139	13	9·1	2·1	083	26	8·8	2·2	122	17	17·8	17·3	289	31	24·8	22·6
3·0 ,, . . .	11	8·1	6·4	109	29	9·4	6·2	109	6	6·7	2·5	062	26	10·0	5·5	086	7	17·9	17·6	276	31	20·8	19·8
4·5 ,, . . .					27	12·1	9·9	094	1	5·0	5·0	045	25	12·5	10·4	085					29	19·2	16·9
5·4 ,, . . .					27	13·5	11·6	093					24	13·5	11·5	087					29	17·0	12·7
6·0 ,, . . .					25	13·2	10·8	095					24	13·5	11·4	085					28	16·4	11·1
7·2 ,, . . .					25	14·9	11·5	101					23	16·3	14·3	079					28	13·8	0·5
9·0 ,, . . .					22	15·0	11·9	095					22	17·6	15·8	075					28	20·2	16·7

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds upto 9.0 Km. above mean sea level

July 1956

Station.	MADRAS								MANGALORE								MASULIPATNAM											
	1430				2030*				0130				0730				1430				0130							
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D				
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . .	31	10.2	8.6	281	31	6.6	3.4	235	31	7.0	4.6	282	31	6.0	3.8	274	31	8.2	6.9	276	31	5.5	5.0	259				
0.15 a. g. .	31	15.2	13.2	275	30	9.2	5.9	252	24	14.0	12.3	279	24	13.3	10.5	273	27	13.3	11.9	278	23	16.6	15.3	261				
0.3 a. m. s. l. .	31	15.4	14.0	275	30	11.5	8.7	258	24	16.7	15.7	281	24	16.7	15.8	278	27	15.9	14.6	282	23	21.0	19.7	267				
0.6 ,, .	31	16.3	15.5	276	30	14.7	12.5	265	23	21.8	21.0	285	24	22.0	21.1	280	27	22.6	21.1	283	23	25.6	24.5	275				
0.9 ,, .	31	18.0	17.1	280	30	18.2	17.3	274	17	26.3	25.6	289	22	24.9	24.3	285	23	27.3	25.9	286	21	25.1	24.3	279				
1.5 ,, .	31	21.7	20.8	286	30	22.5	21.8	280	13	30.4	29.9	290	16	27.3	26.3	288	15	27.8	27.1	289	18	25.5	25.0	286				
2.1 ,, .	23	25.4	25.0	286	31	24.2	23.4	280	6	28.5	28.2	290	9	26.2	25.5	286	8	26.9	26.5	291	9	26.5	25.8	288				
3.0 ,, .	12	23.7	23.3	288	31	23.8	23.2	286	2	21.0	16.3	303	4	25.3	23.4	292	3	21.7	21.1	279	1	20.0	20.0	290				
4.5 ,, .	5	17.2	16.3	280	31	20.3	19.2	255																				
5.4 ,, .	4	13.5	10.3	281	31	16.0	13.5	285																				
6.0 ,, .	3	16.7	10.4	248	31	14.2	9.7	280																				
7.2 ,, .	2	13.5	4.1	270	31	12.2	1.1	300																				
9.0 ,, .	2	20.5	20.5	082	24	17.8	13.3	091																				

Station.	MASULIPATNAM								MINICOY								MOHANBARI											
	0730				1430				0130				0730				1430				0130							
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D				
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . .	31	6.3	5.9	266	31	9.0	8.2	278	31	8.9	8.5	288	31	8.4	7.8	286	31	9.6	9.0	288	31	1.2	0.5	199				
0.15 a. g. .	27	16.4	15.6	267	26	15.9	15.0	283	30	15.1	14.2	282	31	15.5	14.2	284	31	17.0	16.2	285	23	6.1	0.3	224				
0.3 a. m. s. l. .	27	23.9	23.1	278	26	18.0	17.2	282	30	15.6	14.9	284	31	15.8	14.2	285	31	17.6	16.8	285	23	6.0	0.7	228				
0.6 ,, .	26	26.9	26.1	286	26	20.0	19.2	285	30	19.6	18.8	287	31	19.3	18.3	286	31	20.4	19.2	285	23	5.5	1.3	243				
0.9 ,, .	26	27.3	26.2	296	24	21.8	21.0	289	30	23.5	22.6	289	31	23.0	22.2	291	31	24.9	24.0	291	21	3.9	0.7	241				
1.5 ,, .	24	26.5	25.3	298	19	28.1	27.5	295	27	25.9	25.2	290	28	24.5	23.7	294	26	26.8	25.9	294	20	3.7	0.7	094				
2.1 ,, .	22	21.8	20.4	291	16	29.0	28.5	294	22	24.4	23.3	292	23	22.9	22.2	293	22	24.7	24.0	293	19	4.3	0.4	208				
3.0 ,, .	13	16.5	14.4	295	6	34.8	34.2	295	12	20.6	19.7	289	19	17.7	16.6	282	18	23.8	22.4	287	18	4.0	1.0	234				
4.5 ,, .	7	16.4	10.0	274	1	23.0	23.0	310					10	12.9	11.3	279	10	17.9	16.8	286	2	5.5	5.3	137				
5.4 ,, .	3	14.0	12.1	139									8	9.7	7.4	265	5	16.2	15.1	272	1	4.0	4.0	230				
6.0 ,, .	3	17.7	17.2	139									6	7.3	2.2	270	5	13.8	13.0	278								
7.2 ,, .													3	9.0	6.9	067	3	4.0	3.9	230								
9.0 ,, .													3	21.6	21.6	088	1	21.0	21.0	130								

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9·0 Km. above mean sea level

July 1956

Station.	MOHANBARI								MUSSOORIE								NAGPUR							
	0730				1430				0730				1430				0130				0830*			
Time in I.S.T.																								
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	1·3	0·4	052	31	2·3	0·1	330	31	1·5	0·5	190	31	3·1	1·7	187	31	5·2	4·4	267	31	8·7	7·1	2
0·15 a. g. . .	25	4·4	1·7	067	31	5·8	0·6	155	19	4·9	1·3	153	10	6·2	2·7	152	22	12·4	10·4	285	31	10·5	8·7	2
0·3 a. m. s. l. . .	25	4·6	1·8	066	31	5·7	0·5	151																
0·6 ,, . . .	23	5·9	2·1	056	31	6·0	1·1	163									22	13·8	11·6	292	31	12·5	10·3	2
0·9 ,, . . .	21	5·3	2·2	053	30	7·1	2·0	203									22	15·2	12·7	291	31	16·7	14·3	2
1·5 ,, . . .	16	5·7	2·3	065	29	7·0	3·2	217									21	12·7	9·5	285	31	15·9	13·9	2
2·1 ,, . . .	14	4·9	2·4	085	24	6·4	3·2	173	19	4·6	1·3	171	10	5·5	2·0	175	17	12·4	7·9	284	31	14·0	11·6	2
3·0 ,, . . .	9	5·2	2·5	053	20	5·3	2·9	165	14	6·8	4·1	115	6	10·3	8·6	145	8	10·3	1·7	285	31	12·2	7·2	3
4·5 ,, . . .	8	6·3	0·9	098	15	7·9	3·0	129	7	4·6	2·6	102	1	12·0	12·0	295	1	12·0	12·0	270	28	12·6	3·3	3
5·4 ,, . . .	4	8·7	3·4	033	12	10·4	3·2	119	7	7·1	6·7	095	1	14·0	14·0	250					27	12·0	2·7	0
6·0 ,, . . .	4	8·0	3·0	060	10	9·6	1·7	141	7	12·6	11·3	109	1	16·0	16·0	260					25	12·8	4·8	0
7·2 ,, . . .	3	11·3	5·9	084	4	9·7	3·4	222	4	6·5	5·9	161									19	12·5	7·4	0
9·0 ,, . . .					4	10·5	1·9	077	4	10·0	3·5	178									15	14·4	12·3	0

Station.	NAGPUR								NEW DELHI															
	1430				2030*				0130				0830*				1430				2030*			
Time in I.S.T.																								
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	9·9	7·7	289	26	4·8	3·6	294	31	4·6	3·5	124	31	6·5	3·7	112	31	7·4	3·8	119	31	5·5	2·5	1
0·15 a. g. . .	28	12·6	10·1	288	26	7·2	5·6	293	31	10·6	7·3	129	31	7·5	3·8	120	31	10·5	5·7	121	31	6·7	3·9	1
0·3 a. m. s. l. . .									31	8·3	5·1	127	31	7·1	3·9	120	31	10·2	6·1	117	31	6·3	3·9	1
0·6 ,, . . .	28	12·8	10·5	290	26	10·0	8·2	291	31	12·2	8·8	136	31	9·9	6·3	135	31	10·3	6·3	119	31	8·8	5·8	1
0·9 ,, . . .	27	14·0	11·7	288	26	16·0	13·3	292	28	12·6	10·2	129	31	12·4	8·1	130	30	10·9	7·4	116	31	10·6	7·4	1
1·5 ,, . . .	26	15·7	12·3	302	26	17·2	12·2	295	26	11·7	8·1	126	31	13·3	8·2	130	29	12·3	8·9	116	31	11·3	6·3	
2·1 ,, . . .	22	16·9	12·8	298	26	16·6	12·2	295	26	11·3	8·2	110	31	13·6	8·5	116	26	13·5	8·8	113	31	11·2	3·8	
3·0 ,, . . .	10	9·9	5·0	302	26	15·0	10·2	304	22	15·9	7·5	106	31	12·9	6·1	108	25	12·8	10·1	111	31	10·7	6·1	
4·5 ,, . . .	6	9·7	0·6	028	26	12·3	6·3	338					31	11·0	9·1	102	19	12·7	10·8	107	31	11·5	7·2	
5·4 ,, . . .	4	7·7	4·4	110	25	12·7	5·3	011					29	12·7	10·2	097	17	14·5	12·5	105	31	13·0	11·1	
6·0 ,, . . .	2	4·5	3·4	074	24	12·6	5·6	037					29	13·3	10·5	099	16	14·3	12·7	100	30	13·7	11·5	
7·2 ,, . . .					23	13·6	9·2	071					28	12·4	9·4	103	12	13·1	12·1	108	29	15·7	11·7	
9·0 ,, . . .					15	18·7	17·4	084					25	12·8	9·2	102	11	16·6	13·3	086	28	14·9	9·1	

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds upto 9.0 Km. above mean sea level

July 1956

Station.	POONA												PORT BLAIR															
	0130				0730				1430				0130				0730				1430							
Time in I.S.T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface .	31	5.8	5.6	265	31	6.6	6.3	263	31	8.9	8.8	268	31	9.2	8.6	230	31	8.0	7.8	228	31	13.2	12.7	231				
0.15 a. g.	29	16.5	16.3	261	30	16.3	16.1	260	30	16.1	15.9	266	25	17.6	16.9	231	27	13.1	12.3	231	26	18.9	18.4	230				
0.3 a. m. s. l.													25	19.0	18.2	232	27	16.6	15.6	231	26	19.9	19.1	232				
0.6 „	29	8.9	8.8	259	30	9.9	9.6	259	30	11.1	11.0	265	24	22.4	21.3	237	27	20.7	19.3	232	26	19.7	19.2	235				
0.9 „	29	19.8	19.5	264	30	20.9	20.4	264	30	19.9	19.6	266	23	19.3	18.5	241	26	20.3	18.7	238	19	21.9	21.2	237				
1.5 „	12	28.3	28.1	272	18	32.3	31.6	268	19	28.2	27.2	262	22	16.2	13.9	249	23	17.2	15.0	241	7	18.4	16.0	240				
2.1 „	2	21.5	21.5	288	3	32.0	31.3	274	16	28.9	27.6	256	15	13.3	10.4	243	17	14.6	10.6	241	5	16.4	12.0	235				
3.0 „									12	22.2	18.5	253	3	12.3	2.5	239	12	11.4	8.2	260								
4.5 „									9	12.1	6.6	259					5	7.6	4.6	229								
5.4 „									5	11.6	8.3	270					2	9.0	5.7	237								
6.0 „									3	11.0	6.4	284					1	10.0	10.0	090								
7.2 „																	†	16.0	16.0	100								
9.0 „																												

Station.	RAIPUR												SANTACRUZ															
	0130				0730				1430				0130				0830*				1430							
Time in I.S.T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface .	31	4.5	3.5	235	31	3.5	2.3	245	31	4.4	2.8	248	31	9.9	8.6	260	31	11.5	11.0	262	31	12.9	11.7	265				
0.15 a. g.	23	14.8	10.8	244	24	10.6	7.0	256	27	12.5	7.9	263	28	21.0	20.2	253	31	20.6	19.7	265	25	21.7	20.7	254				
0.3 a. m. s. l.													28	22.3	21.6	256	31	21.1	20.0	265	25	23.5	22.8	259				
0.6 „	23	16.4	11.4	254	24	13.5	8.5	272	27	13.7	8.5	267	28	23.6	23.0	261	31	22.6	21.4	265	24	27.6	26.7	262				
0.9 „	21	14.9	8.8	275	24	13.7	7.6	284	27	12.8	8.0	275	17	26.4	25.5	261	31	24.0	22.6	268	19	31.6	30.5	263				
1.5 „	18	11.5	4.8	295	17	12.0	5.3	302	21	11.7	5.0	308	5	21.8	21.1	273	31	25.3	24.1	272	6	25.8	25.4	287				
2.1 „	15	11.1	1.8	327	12	10.4	4.4	339	14	8.4	3.1	054	1	12.0	12.0	280	30	24.2	23.1	270	1	21.0	21.0	270				
3.0 „	10	8.3	4.9	104	11	12.0	3.4	327	11	8.1	3.8	106					30	21.3	19.1	275								
4.5 „	1	3.0	3.0	175	4	9.7	7.8	072	2	8.0	3.9	008					31	17.3	12.9	281								
5.4 „					3	9.0	7.8	099	2	7.5	4.0	125					29	13.3	16.3	295								
6.0 „					3	13.0	10.4	098	2	11.5	6.3	034					29	12.0	3.5	300								
7.2 „					2	9.5	9.1	097	2	9.5	5.5	115					28	12.8	6.0	081								
9.0 „					1	18.0	18.0	075									24	17.3	14.7	087								

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

July 1956.

Station.	UDAIPUR				VENGURLA								VERAVAL											
	1430				0130				0730				1430				0130				0730			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	3.0	2.2	240	31	5.0	4.6	273	31	5.1	4.9	264	31	5.9	5.5	270	31	25.5	24.5	263	31	22.4	20.9	258
15 a. g.	30	8.7	6.8	239	30	15.8	14.9	275	26	16.1	15.5	271	25	16.3	15.4	270	14	21.5	21.3	259	26	21.8	21.0	256
3 a. m. s. l.					28	19.1	18.4	274	26	21.4	20.6	273	25	19.2	18.1	274	14	23.9	23.6	263	26	24.6	23.8	260
6 "					26	23.5	22.6	276	19	25.8	25.0	274	22	25.4	24.1	279	14	25.2	24.7	267	22	27.6	26.9	262
9 "	30	9.3	7.0	243	11	26.5	25.9	285	11	27.5	27.1	278	13	27.3	26.2	283	5	22.6	22.6	270	9	26.6	26.2	270
5 "	20	9.6	4.1	257	4	23.0	22.6	289	5	24.6	24.4	280	6	24.8	23.8	291					2	13.5	13.5	259
1 "	10	10.8	7.9	268					2	22.5	22.5	293	1	20.0	20.0	310								
0 "	4	10.7	1.8	122					1	19.0	19.0	275												
5 "	2	15.5	14.2	077																				
4 "	1	5.0	5.0	004																				
0 "																								
2 "																								
0 "																								

Station.	VERAVAL				VISAKHAPATNAM																			
	1430				0130				0730				1430											
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D								
Surface	31	22.9	21.4	255	31	5.0	4.2	240	31	4.5	3.9	240	31	10.2	4.7	216								
15 a. g.	28	24.0	23.3	256	29	8.4	6.8	246	28	7.5	5.8	245	29	12.4	6.1	230								
3 a. m. s. l.	28	27.0	27.0	260	29	9.5	7.9	252	28	10.2	7.6	264	29	13.2	6.9	235								
6 "	21	26.9	26.5	266	29	11.2	9.7	261	28	12.4	9.5	276	29	12.5	7.5	264								
9 "	11	25.7	25.5	272	27	13.4	11.8	275	28	13.1	10.0	292	27	13.0	8.0	281								
5 "	3	20.3	20.0	278	24	17.1	15.6	281	28	14.6	11.8	286	25	15.0	10.1	301								
1 "	1	13.0	13.0	280	19	13.7	12.1	286	23	12.7	9.5	284	20	20.3	15.7	301								
0 "					7	10.9	6.0	285	16	11.1	5.0	290	14	18.4	10.5	300								
5 "					1	16.0	16.0	085	8	12.7	9.5	119	6	16.0	2.5	301								
4 "									5	13.4	11.6	127	4	18.3	3.8	030								
0 "									5	15.2	14.6	120	3	14.7	1.2	246								
2 "									2	21.5	20.5	100	2	15.5	9.3	081								
0 "													1	7.0	7.0	080								

RADIOSONDE DATA

July 1956

During the month, observations of upper air temperature, pressure and humidity were made at 12 stations in India given in as the list below. For a detailed description of the instruments used a reference may be made to the I.M.D. Scientific Notes Nos. 112 and 113 (Volume IX).

LIST OF RADIOSONDE STATIONS IN INDIA

Serial No.	Name of station	Type of instrument used	Date of starting	Hours of routine observations in GMT during the month	Remarks
1	Allahabad	Clock type	1st October, 1944	03 and 15	
2	Bombay	Clock type	7th September, 1954	03 and 15	
3	Calcutta	Clock type	13th December, 1946	03 and 15	Fan type used from 13th December, 1946 to 30th November, 1947.
4	Gauhati	Clock type	22nd July, 1955	03 and 15	
5	Jodhpur	Clock type	17th April, 1946	03 and 15	
6	Madras	Fan type	29th June, 1946	03 and 15	
7	Nagpur	Fan type	1st October, 1946	03 and 15	
8	New Delhi	Clock type	3rd December, 1943	03 and 15	
9	Port Blair	Fan type	4th December, 1949	15	
10	Trivandrum	Fan type	1st July, 1947	15	
11	Veraval	Fan type	3rd October, 1944	15	
12	Visakhapatnam	Fan type	8th December, 1946	15	

RADIOSONDE DATA

TABLE VI.—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(A) From Ascents at 03 Hours G. M. T.

July 1956

Standard Pressure Surface mb.	ALLAHABAD (Surf. Pr. (989 mb.))							BOMBAY (1004 mb.)							CALCUTTA (1001 mb.)						
	No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A						
			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point			
Surface	31	98	302.5	306	298	298.3	31	9	299.8	301	298	298.6	29	6	301.7	303	298	29			
1000	19	2	..	..	..	..	31	46	..	..	..	..	29	13	..	..	..	..
900	19	930	296.4	300	293	294.5	31	969	293.6	297	291	292.3	29	944	294.9	298	292	29			
850	19	1426	293.9	298	291	291.3	31	1462	290.9	295	288	289.7	29	1438	292.5	296	289	29			
800	19	1950	290.9	295	289	288.8	31	1980	288.1	292	284	286.9	29	1959	290.3	295	287	28			
700	19	3084	286.2	290	283	283.7	31	3105	284.0	288	279	281.0	27	3091	285.3	289	281	28			
600	19	4364	279.5	282	277	276.3	31	4378	278.0	283	274	273.6	26	4371	278.8	282	274	27			
500	19	5838	272.1	276	268	270.9	29	5851	271.0	277	267	270.1	24	5844	271.0	276	265				
400	18	7595	263.2	271	259	..	29	7596	261.9	271	255	..	24	7587	261.4	267	255				
300	12	9770	250.2	257	243	..	23	9759	249.5	258	239	..	20	9742	248.5	255	241				
250	9	11066	240.7	249	233	..	19	11056	239.8	251	229	..	11	11053	238.5	249	227				
200	9	12600	228.7	239	215	..	18	12596	229.5	242	218	..	9	12553	224.8	245	212				
175	8	13524	222.5	232	203	..	15	13451	222.1	232	210	..	8	13456	216.5	239	204				
150	5	14552	217.6	226	209	..	14	14436	215.5	226	200	..									
125	5	15738	212.4	220	202	..	13	15602	209.2	220	192	..									
100							9	16966	208.0	215	200	..									
80							8	18346	213.6	225	200	..									
<hr/>																					
Surface	GAUHATI (998 mb.)							JODHPUR (976 mb.)							MADRAS (1005 mb.)						
	No. of Obs.	Ht. gpm.	Mean	Max.	Min.	Dew Point	No. of Obs.	Ht. gpm.	Mean	Max.	Min.	Dew Point	No. of Obs.	Ht. gpm.	Mean	Max.	Min.	Dew Point			
Surface	31	49	301.5	305	298	299.0	30	218	300.7	303	299	297.9	30	15	301.5	304	299	295			
1000	29	34	..	..	..	..	30	—	..	..	..	..	30	57	..	..	..	..
900	29	963	295.1	299	291	293.5	30	933	295.3	299	290	293.0	30	983	294.5	299	290	289			
850	29	1458	292.3	296	288	290.8	30	1430	293.2	297	290	290.0	30	1478	292.0	298	289	287			
800	28	1980	289.2	292	285	287.7	30	1953	290.9	295	288	287.4	30	1998	289.3	294	286	284			
700	28	3108	284.3	288	279	281.6	30	3088	285.8	291	282	281.3	30	3123	283.1	289	280	278			
600	28	4384	278.0	281	274	274.6	28	4371	278.8	284	273	274.6	30	4390	275.8	283	273	272			
500	28	5854	270.2	275	264	270.8	28	5845	270.8	275	264	..	29	5848	268.8	275	263				
400	27	7593	261.6	265	257	..	26	7588	262.0	268	250	..	28	7574	258.4	267	254				
300	26	9754	248.4	260	241	..	24	9757	250.1	259	243	..	28	9698	244.7	250	242				
250	24	11059	240.1	249	233	..	23	11073	241.8	251	232	..	24	10985	236.1	247	231				
200	23	12605	230.0	241	217	..	18	12628	230.9	243	219	..	21	12493	224.3	236	219				
175	17	13504	224.5	236	216	..	18	13524	224.4	238	211	..	19	13356	217.2	228	211				
150	11	14587	221.5	230	213	..	16	14512	218.2	233	205	..	18	14338	210.8	220	204				
125	10	15748	214.8	225	205	..	15	15640	210.5	227	199	..	12	15413	204.7	210	196				
100	8	17132	209.4	219	203	..	14	17053	205.0	221	193	..	10	16757	202.5	206	198				
80							6	18388	204.2	215	194	..	9	18092	206.0	212	203				

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES.

(A) From Ascents at 03 Hours G. M. T.

July 1956

Standard Pressure Surface mbs.	NAGPUR Surf. Pr. (967 mb.)						NEW DELHI (975 mb.)					
	No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A			
			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point
Surface	29	311	298.8	301	297	295.5	31	210	301.4	306	297	298.0
1000	29	15	..	..	..	..	31	3	..	..	..	..
900	29	943	295.3	299	291	291.0	31	937	296.6	300	292	294.6
850	29	1440	292.9	296	290	288.7	31	1438	294.0	297	289	291.8
800	29	1962	290.5	294	287	286.3	31	1960	290.7	294	288	288.5
700	29	3096	285.1	289	281	281.0	31	3093	284.8	289	277	282.4
600	28	4374	279.2	283	276	273.5	29	4374	279.0	283	274	275.1
500	28	5850	271.2	275	267	..	29	5848	270.9	275	265	268.4
400	22	7601	261.4	266	254	..	28	7589	260.7	267	252	..
300	17	9758	249.6	255	246	..	24	9733	247.3	256	234	..
250	16	11063	240.6	249	235	..	22	11027	238.3	247	224	..
200	15	12604	229.8	243	224	..	18	12539	226.3	236	213	..
175	12	13467	223.3	229	219	..	16	13419	220.7	230	207	..
150	11	14466	214.3	222	206	..	13	14468	213.4	225	198	..
125	11	15579	208.3	216	203	..	13	15515	207.1	219	190	..
100	11	16937	204.4	210	201	..	8	16893	202.6	214	185	..
80	8	18262	205.8	209	197	..						

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(B) From Ascents at 15 Hours G. M. T.

July 1956

Standard pressure surface mbs.	NAGPUR Surf. Pr. (966 mb.)						NEW DELHI (975 mb.)						PORT BLAIR (998 mb.)					
	No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A			
			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point
Surface	28	311	299.9	302	297	295.7	31	210	302.6	307	299	297.5	30	81	298.9	301	297	297.6
1000	28	5	..	..	..	..	31	—14	..	..	..	..	30	61	..	..	..	..
900	28	934	296.5	298	293	291.6	31	924	298.7	304	295	295.0	29	987	294.6	299	292	290.6
850	28	1432	293.5	296	291	289.1	31	1426	295.5	301	292	292.4	29	1482	292.1	297	289	287.1
800	28	1955	290.0	293	289	285.8	31	1953	292.3	297	289	289.5	29	2002	289.6	293	287	282.8
700	28	3086	284.3	287	280	279.8	31	3092	286.0	289	283	280.5	29	3129	283.6	287	279	276.2
600	28	4361	277.6	280	274	273.7	31	4364	279.0	282	274	275.5	29	4397	276.5	281	271	270.5
500	26	5821	269.7	275	266	..	30	5849	271.0	274	266	..	28	5854	268.0	272	265	..
400	25	7546	260.5	266	254	..	29	7595	260.3	267	254	..	25	7579	258.0	264	253	..
300	19	9709	247.4	253	241	..	27	9750	247.7	255	238	..	20	9699	244.1	250	239	..
250	15	10991	237.8	246	230	..	27	11049	238.2	246	226	..	14	10965	233.2	241	227	..
200	14	12515	227.2	237	221	..	24	12569	226.9	237	213	..	12	12465	223.5	239	210	..
175	12	13409	218.9	228	213	..	22	13438	220.4	232	206	..	5	13260	212.6	219	204	..
150	12	14338	211.1	220	201	..	16	14453	214.7	226	207	..						
125	7	15410	201.6	205	194	..	10	15566	208.3	221	200	..						
100	5	16729	194.2	201	187	..	7	16964	204.7	213	197	..						
80																		

Standard pressure surface mbs.	TRIVANDRUM (1002 mb.)						VERAVAL (1002 mb.)						VISAKHAPATNAM (995 mb.)					
	No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A			
			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point
Surface	27	64	297.3	299	297	295.3	18	8	299.5	300	298	297.3	30	48	300.9	305	297	296.5
1000	27	84	..	..	..	..	18	26	..	..	..	..	30	7	..	..	..	..
900	27	1000	292.0	296	289	288.1	18	950	293.4	298	289	290.2	30	936	296.2	299	295	291.1
850	27	1489	289.1	295	286	284.6	18	1443	291.1	294	286	287.5	30	1432	293.3	297	290	288.6
800	27	2002	286.0	289	282	281.1	18	1961	288.9	292	286	284.1	30	1954	290.6	294	288	285.5
700	27	3115	281.2	286	277	272.5	16	3088	285.2	288	282	278.8	30	3083	284.8	289	282	277.3
600	27	4373	274.7	278	271	265.3	16	4365	278.6	283	275	273.1	30	4354	277.2	281	274	273.3
500	27	5820	266.0	270	261	..	15	5837	270.7	276	267	261.2	30	5818	269.0	273	265	..
400	27	7528	255.5	261	249	..	12	7591	262.4	266	258	..	30	7548	259.4	264	255	..
300	26	9624	240.2	247	235	..	8	9751	250.0	255	244	..	27	9671	245.7	252	239	..
250	24	10885	230.0	237	224	..	6	11071	242.2	252	235	..	25	10957	236.5	244	231	..
200	23	12359	219.0	228	214	..							21	12462	224.9	234	218	..
175	22	13197	212.8	226	205	..							14	13310	216.7	223	212	..
150	22	14155	206.0	222	200	..							13	14271	208.0	217	198	..
125	16	15243	201.6	214	195	..							6	15360	201.7	209	190	..
100	11	16556	200.3	213	193	..												
80	7	17851	203.9	210	195	..												

NOTE : Number of observations refer to those of dynamic height.

Means are not worked out for temperature and dew point for the 1000 mb. surface and for dew point for standard pressure surfaces with temperature less than 273°A.

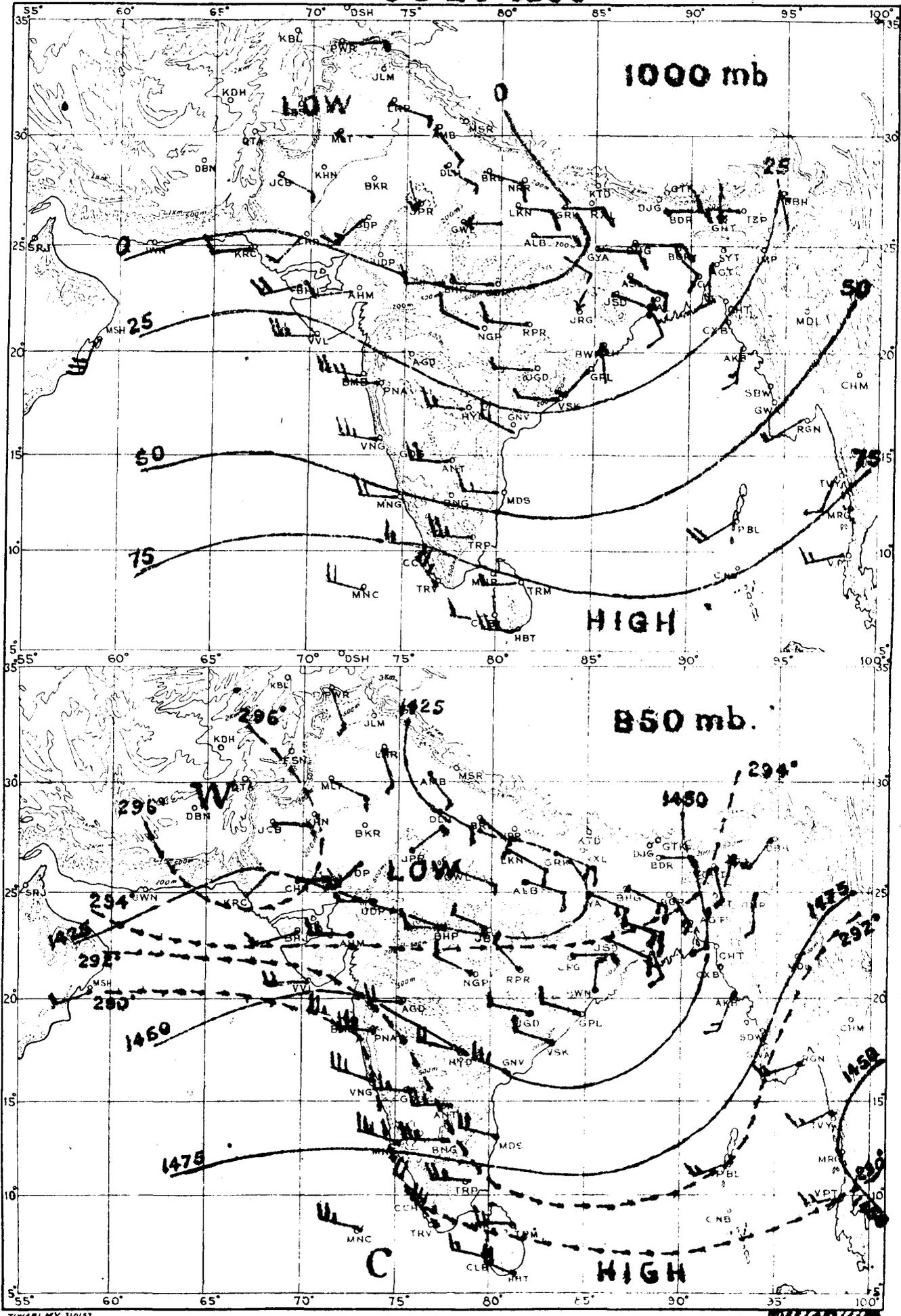
Means are not worked out for less than five observations at standard pressure surfaces.

MONTHLY MEAN CONSTANT PRESSURE CHARTS

I. Met. D.

JULY 1956

Plate 1



RESULTANT WIND 5 Knots, 10 Knots, 50 Knots.

----- isotherms in degrees absolute.

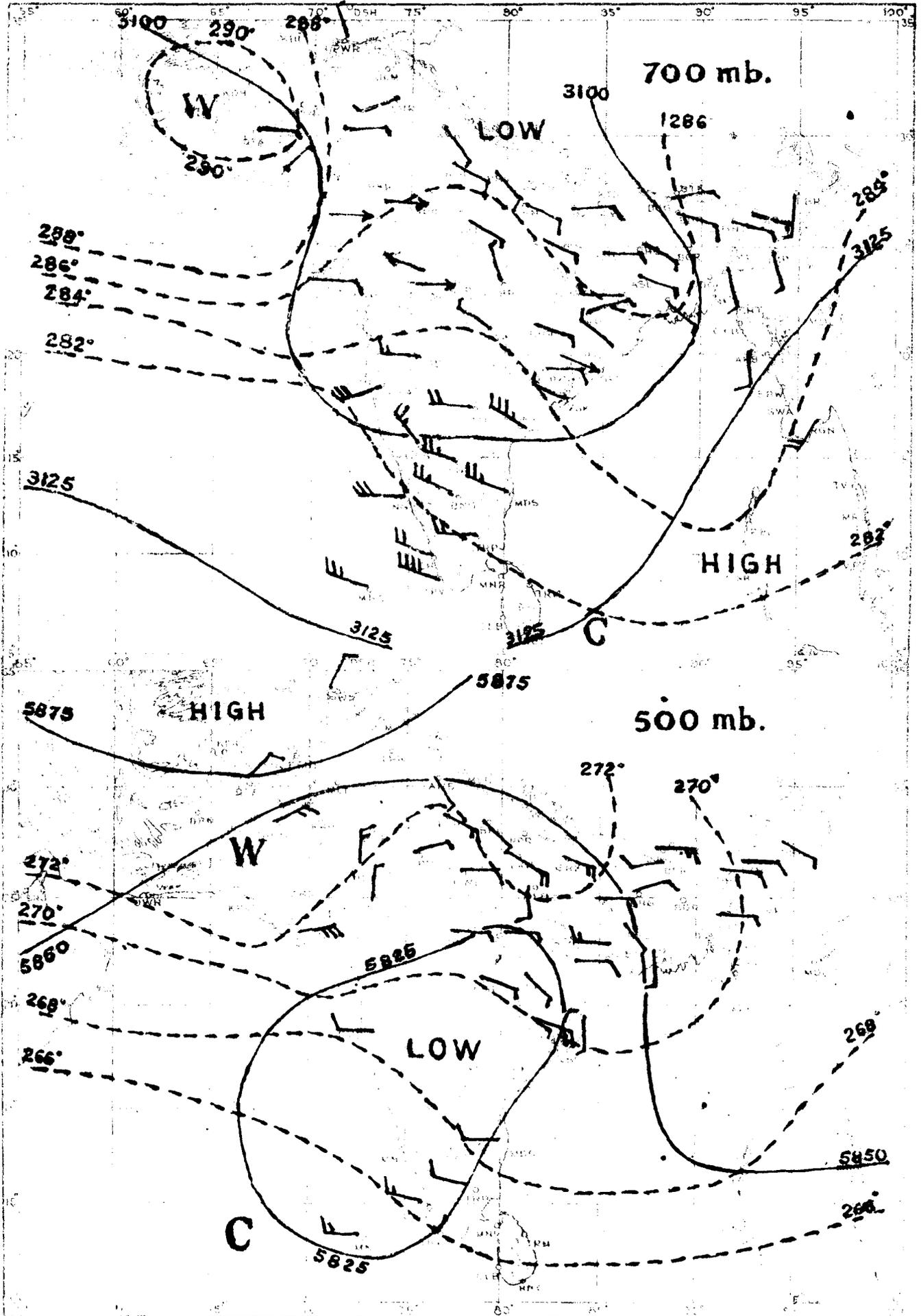
————— Contours in geopotential metres.

MONTHLY MEAN CONSTANT PRESSURE CHARTS

JULY 1956

Plate II

I Mel D.



RESIDUAL WIND \rightarrow 5 Knots, \rightarrow 10 Knots, \rightarrow 50 Knots
 Isotherms in degrees absolute. --- Contours in geopotential metres.

INDIA WEATHER REVIEW, 1956

Monthly Weather Report

August

Published by authority of the Government of India

Chief features—

(1) Active monsoon conditions over most parts of the country during the first half of the month in association with two depressions from the Bay of Bengal; and

(2) Abundant rainfall in the submontane regions extending from the Punjab (I) to Bihar during the latter half of the month with generally weak monsoon conditions over the rest of the country.

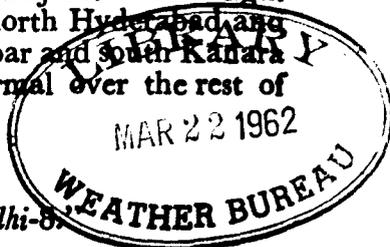
A shallow depression formed in the north-west Bay of Bengal with its centre about 100 miles to the south-east of Cuttack on the morning of 1st August and crossed coast on 3rd. Moving westwards across the central parts of the country and south Rajasthan, it emerged out into the north-east Arabian Sea as a low pressure area on the 7th and became unimportant on the next day. Under its influence, the seasonal monsoon trough was maintained to the south of its normal position and the rainfall in the first week of August was either normal or in excess over the region extending from the Konkan, Saurashtra and Kutch and west Rajasthan on the west to Orissa on the east. In north Konkan and north Deccan (Desh), the monsoon was strong to vigorous from the 1st to the 3rd, the rainfall being exceptionally heavy over the Deccan Ghats and neighbourhood. The fall of 18.7" recorded at Khandala on the 2nd August and 13.4" recorded at Mahabaleshwar on the 3rd are the highest rainfall amounts on record for these two places. Saurashtra and Kutch and Gujarat also had a spell of heavy to very heavy rains on the 5th and the 6th. On the other hand, weak monsoon conditions prevailed over the Punjab (I), Uttar Pradesh and Bihar during the first week of the month.

Another depression formed over the north Bay of Bengal on the 7th with its centre near Saugor Islands. Moving westwards, it was centred near Daltonganj on the 8th and near Sutna on 9th. Weakening slowly, it filled up over southwest Uttar Pradesh on the 12th. Under its influence, the monsoon continued active over north Madhya Bharat, north Madhya Pradesh and Vindhya Pradesh and revived in Uttar Pradesh and the Punjab (I), causing locally heavy to very heavy rains over these areas on some days. Following this depression there was a gradual shift of the monsoon trough northwards.

One more depression formed in the north Bay of Bengal with centre about 200 miles to the east southeast of Gopalpur on 13th morning. It took a more northerly course than usual, crossed coast on the 16th and dissipated near the central parts of West Bengal on the 20th. Under its influence, a further northward shift of the seasonal trough took place, resulting in heavy to very heavy rains in north-east India, Uttar Pradesh and the Punjab (I). Even after the disappearance of this depression, the seasonal trough persisted to the north of its normal position. Further under the influence of two westerly waves which moved across the north of the country, monsoon remained active over the region extending from the Punjab (I) to West Bengal during the last two weeks of the month. However, there was practically a break in the monsoon over the belt of the country from west Rajasthan to east Hyderabad and in east Madhya Pradesh during the same period. The prolonged spell of heavy rains in the Punjab (I), Uttar Pradesh and Bihar was reported to have caused floods and damage to crops and other property in these areas.

Conditions became unsettled in the west central Bay of Bengal on the 29th and a low pressure wave which moved from this region across the Peninsula between the 30th and 31st, caused active monsoon conditions over most parts of the Peninsula.

The rainfall for the month was in large excess in Jammu and Kashmir, Saurashtra and Kutch and Deccan (Desh), in moderate excess in the Bay Islands, Orissa, the Punjab (I) and Gujarat and in slight excess in Chota Nagpur, west Uttar Pradesh, west Rajasthan, Vindhya Pradesh, north Hyderabad and coastal Andhradesa. It was in slight defect in Assam, west Madhya Pradesh, Malabar and south Kanara and Travancore-Cochin, in moderate defect in Rayalaseema and Mysore and normal over the rest of the country.



The mean maximum temperature was below normal in Jammu and Kashmir, Rajasthan, Gujarat, Saurashtra and Kutch and Rayalaseema and normal elsewhere. The mean minimum temperature was normal over the country outside Saurashtra and Kutch where it was below normal.

The mean relative humidity in the morning was in excess in the Punjab (I), west Rajasthan, Gujarat and Saurashtra and Kutch and normal elsewhere over the country.

The mean cloud amount in the morning was normal over the country except in Jammu and Kashmir and Tamilnad where it was above normal.

Table I contains the divisional and sub-divisional means of rainfall, temperatures, humidity and cloud amount for the 13 chief political divisions and the 28 sub-divisions. The stations whose observations are used for preparing these means are given in the subsequent tables.

The highest maximum temperature given for any station in the accompanying tables is that recorded within the 24 hours ending at 0830 hrs. IST of the date noted in the succeeding column. Similarly the heaviest fall in 24 hours for any station denotes the amount recorded during the 24 hours ending at 0830 hrs. IST of the date given in the succeeding column.

POONA 5:

The 3rd January 1958.

S. S. LAL,

for Director General of Observatories

Errata to Monthly Weather Report for August 1956.

Page No.	Station	Hour	Column	For	Read
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Table II

356	Bagdogra	-	14	Blank.	26
	Baripada	-	11	1.827	18.27
	Gopalpur	-	13	.20	3.20
357	Heading of column		15, 16	No o	No of
360	Visakhapatnam	-	12	-0.08	+0.08
	Kurnool	-	2	38.5	88.5
	Tiruchirapalli	-	2	85.7	95.7
	Hassan	-	12	Not clear	-1.50
	Mysore	-	12	Not clear	-2.51
361	Heading of column		25	Dust steun	Dust storm
	Lhasa	-	17, 19	Blank	Dash
362	Heading of column		3	Mean sea evel	Mean sea level

Table III

364	Heading of column	11	Relative Humidity by	Relative Humidity %
	Gauhati (Kai- kuchi aero- drome)	1730 11	5	85
	Foot-note		(e) = Mean days	(e) = Mean of 26 days.
	Suri	1730 25	Blank	1
366	Heading	- 15	miles per houn	miles per hour
367	Dehra Dun	0830 27	Blank	8
368	Heading	- 15	Not clear	miles per hour
	Dehra Dun	2330 14	Blank	Dash
	Ferozpur		No necessity of Asterisk marks.	
	Shriganganagar	1730 16	Blank	0
369	Bikaner	0830 6	Blank	0
	Jaipur (Sanga- ner Aerodrome)	1730 8	66.7	76.7
370	Satna	2330 19	Blank	0
371	Hoshangabad	0830 23	No necessity of Asterisk marks.	
	Ahmedabad	0530 13	Blank	5.6
	Jamnagar	1130 10	27.0	29.0
376	Heading of columns		7, 8 & 9	Mean Temper
377	Katmandu	0830 12	-0	0
378	Lhasa		No necessity of (R) Remarks.	

Table IV

383	Bamrauli	0830*	Height	186	086
			3.0 under 'D'		
388	Jaipur	0730	No necessity of Asterisk marks.		
392	Santacruz	2030*	Height	5.6	15.6
			09, under v.		

TABLE I—DIVISIONAL AND SUB-DIVISIONAL MEANS—AUGUST, 1956.

	Rainfall (inches).	Percentage of normal.	Mean maximum temperature °F.	Mean minimum temperature °F.	Relative humidity.		Cloud.		1	2	3	4	5	Relative humidity.		Cloud.		6	7	8	9	
					0830 hrs. I.S.T.	1730 hrs. I.S.T.	0830 hrs. I.S.T.	1730 hrs. I.S.T.						0830 hrs. I.S.T.	1730 hrs. I.S.T.	0830 hrs. I.S.T.	1730 hrs. I.S.T.					
																						6	7	8	9
Division																						
1. Assam (Including Manipur & Tripura).	11.93 -2.22	84 ..	90.2 +1.0	77.6 +0.2	86 +1	80 ..	6.5 +0.2	5.9 ..	Division—contd.													
									8. Madhya Bharat & Vindhya Pradesh.	12.15 +0.63	105 ..	85.0 -0.6	73.3 -1.1	87 +3	76 ..	6.5 +0.1	6.7 ..					
2. West Bengal	13.31 -1.07	93 ..	88.7 -0.2	78.4 -0.1	85 +1	81 ..	6.1 -0.1	6.2 ..	9. Madhya Pradesh	11.34 -0.94	92 ..	85.1 +0.2	73.2 -0.3	85 +2	74 ..	6.7 +0.4	7.1 ..					
3. Orissa	17.92 +5.20	141 ..	87.8 -0.1	77.7 -0.4	85 +3	84 ..	6.9 +1.1	7.1 ..	10. Bombay (Including Saurashtra & Kutch).	13.67 +3.12	130 ..	83.8 -1.8	73.2 -1.0	88 +5	77 ..	6.7 +0.3	6.3 ..					
4. Bihar	12.97 -0.02	100 ..	88.2 +0.2	77.6 -0.2	85 +2	82 ..	6.3 +0.1	6.9 ..	11. Hyderabad	6.37 +0.34	106 ..	85.7 -0.9	71.2 -0.7	82 +3	64 ..	5.9 +0.3	6.7 ..					
5. Uttar Pradesh	12.39 +0.30	102 ..	90.1 +0.2	77.5 -0.4	84 +2	76 ..	5.2 -0.4	5.6 ..	12. Madras (Including Travancore-Cochin).	5.54 -0.45	92 ..	89.2 -1.6	76.3 -0.2	76 0	67 ..	6.2 +0.7	6.7 ..					
6. Punjab (I) (Including PEPSU & Delhi).	9.34 +2.08	129 ..	92.7 -1.5	77.7 -1.1	82 +7	69 ..	4.2 -0.1	4.3 ..	13. Mysore	4.93 -1.96	72 ..	79.9 -1.8	67.5 -0.1	85 +3	64 ..	6.2 -0.3	6.3 ..					
7. Rajasthan	6.33 +0.14	102 ..	88.9 -2.5	75.4 -1.6	81 +5	63 ..	4.9 0	5.1 ..	Mean of India	10.40 +0.58	106 ..	87.2 -0.9	75.0 -0.6	84 +3	73 ..	6.0 +0.2	6.3 ..					
Sub-Division																						
8. Bay Islands	22.14 +5.85	136 ..	83.0 -0.4	75.2 +0.5	85 +1	89 ..	6.7 +0.1	7.4 ..	Sub-Division—contd.													
									15. Madhya Pradesh, East.	14.64 +0.69	105 ..	84.9 +0.4	73.6 +0.2	85 +1	78 ..	6.9 +0.8	7.3 ..					
9. Assam (Including Manipur & Tripura).	11.93 -2.22	84 ..	90.2 +1.0	77.6 +0.2	86 +1	80 ..	6.5 +0.2	5.9 ..	16. Madhya Pradesh, West.	9.27 -1.96	83 ..	85.2 0	72.9 -0.5	85 +2	72 ..	6.6 +0.2	6.9 ..					
10. West Bengal	13.31 -1.07	93 ..	88.7 -0.2	78.4 -0.1	85 +1	81 ..	6.1 -0.1	6.2 ..	17. Gujarat	11.75 +3.87	149 ..	85.9 -1.9	75.0 -0.9	90 +7	77 ..	6.9 +0.1	6.2 ..					
11. Orissa	17.92 +5.20	141 ..	87.8 -0.1	77.7 -0.4	85 +3	84 ..	6.9 +1.1	7.1 ..	18. Saurashtra and Kutch.	6.60 +2.70	169 ..	85.5 -2.8	74.7 -2.1	91 +9	79 ..	6.8 +0.6	6.5 ..					
12. Chota Nagpur	15.26 +1.62	112 ..	86.9 +0.2	76.1 -0.2	85 +2	83 ..	6.8 +0.3	7.4 ..	19. Konkan	17.96 +0.13	101 ..	82.7 -1.5	75.6 -0.6	89 +3	84 ..	7.1 +0.1	6.3 ..					
13. Bihar	11.82 -0.84	93 ..	89.2 +0.1	78.5 -0.2	84 +2	81 ..	5.9 -0.2	6.5 ..	20. Deccan (Desh)	14.81 +5.76	164 ..	82.8 -1.2	69.1 -0.7	85 +4	70 ..	6.1 +0.2	6.2 ..					
14. Uttar Pradesh, East.	11.44 -0.61	95 ..	90.3 +0.4	78.2 -0.2	84 0	77 ..	5.5 -0.2	6.1 ..	21. Hyderabad, North	7.61 +0.97	115 ..	84.8 -0.4	70.0 -0.9	85 +4	67 0	5.9 0	6.7 ..					
15. Uttar Pradesh, West.	13.45 +1.31	111 ..	89.9 0	76.7 -0.6	84 +3	73 ..	4.7 -0.7	5.1 ..	22. Hyderabad, South	5.14 +0.29	95 ..	86.3 -1.3	72.2 -0.5	80 +3	62 ..	5.9 +0.5	6.7 ..					
16. Punjab (I) (Including PEPSU and Delhi)	9.34 +2.08	129 ..	92.7 -1.5	77.7 -1.1	82 +7	69 ..	4.2 -0.1	4.3 ..	23. Coastal Andhradesa	6.17 +1.12	122 ..	90.1 -1.8	78.1 -0.3	77 +1	69 ..	6.7 +0.6	6.9 ..					
17. Jammu & Kashmir.	6.77 +2.92	176 ..	77.5 -3.3	59.5 -1.1	76 0	50 ..	4.9 +0.9	4.5 ..	24. Rayalaseema	2.36 -1.99	54 ..	89.9 -2.7	75.1 -0.8	73 +1	55 ..	6.4 +0.5	6.5 ..					
18. Rajasthan, West	4.39 +0.60	116 ..	92.2 -3.3	77.0 -1.7	79 +6	57 ..	3.9 -0.1	4.3 ..	25. Tamilnad	3.83 +0.32	109 ..	91.2 -1.8	76.2 0	70 -1	61 ..	5.7 +1.1	6.7 ..					
19. Rajasthan, East (Including Ajmer).	8.27 -0.32	96 ..	86.3 -1.9	74.1 -1.6	83 +4	68 ..	5.6 -0.1	5.8 ..	26. Malabar and South Kanara.	15.55 -4.79	76 ..	82.9 -0.5	73.9 -0.3	92 +1	85 ..	6.3 -0.3	6.4 ..					
20. Madhya Bharat	9.93 -0.63	94 ..	84.3 -0.9	72.6 -1.0	87 +2	74 ..	6.6 +0.2	6.5 ..	27. Mysore	4.93 -1.96	72 ..	79.9 -1.8	67.5 -0.1	85 +3	64 ..	6.2 -0.3	6.3 ..					
21. Vindhya Pradesh	15.87 +2.73	121 ..	86.2 -0.1	74.4 -1.5	87 +4	79 ..	6.4 -0.2	7.0 ..	28. Travancore-Cochin	6.95 -2.36	75 ..	83.1 -0.1	74.9 +0.5	88 +2	82 ..	6.9 +0.8	7.1 ..					

NOTE.—The entries in the second line for each division and sub-division indicate departures from normal.

Table with 28 columns: Division and station, Air temperature in °F (Mean maximum, Departure from normal, Highest, Date, Mean minimum, Departure from normal, Lowest, Date), Rainfall in inches (Total fall during 0830-1730 hour, Total fall in 24 hour, Departure from normal, Heaviest fall in 24 hour, Date), No. of rainy days (0.10 or more) (Total in the month, Departure from normal), Wind speed, miles per hour (Mean between 0830-1730 hour, Mean 24 hours, Departure from normal), and Weather phenomena—No. of days w (Precipitation (0.01 or more), Snow or sleet, Hail, Thunder heard, Fog, Dust-storm, Ground frost, Gale, Squall).

TABLE III—SUMMARY OF OBSERVATIONS AT FIXED HOURS—AUGUST, 1956.

Table with columns for Division and station, Hour of observation, Height of barometer, Mean pressure, Mean temperature, Vapour pressure, Relative humidity, Cloud amount, Wind speed, and No. of observations.

(a) Mean of 30 days.

(b) Mean of 29 days.

(c) Mean days.

TABLE III.—SUMMARY OF OBSERVATIONS AT FIXED HOURS—AUGUST, 1956.

Table with columns: Division and station, Hour of observation I.S.T., Height of barometer, Mean pressure in millibars, Mean temperature in °F., Cloud amount (Oktas), Wind speed (m.p.h.), No. of observations (Wind direction). Rows include stations like Chota Nagpur, Jamshedpur, Hazaribagh, Bihar, Patna, Gaya, Jamui, Dumka, Sabour, Bhagalpur, U.P., East Gonda, Nautanwa, Gorakhpur.

(R) Register not received.

Table with 27 columns: Division and station, Hour of observation I.S.T., Height of barometer, Mean pressure (millibars), Mean Temperature (°F), Vapour pressure (mba), Relative humidity %, Departure from normal, Cloud amount (Oktas), Wind speed (m.p.h.), and No. of observations (Wind direction). Rows include stations like Deccan (Desh), Gada, Hyderabad, Aurangabad, Parbhani, Ramagundam, Nizamabad, Bidar, Hyderabad South, Raichur, Mahbubnagar, Hyderabad (Begumpet), Hakimpet, Hanamkonda, Bhadrachallam, Khammameth, Coastal Andhradesa, Ongole, and Gannavaram.

MONTHLY MEANS OF UPPER WINDS, AUGUST 1956

During the month, observations of velocity and direction of upper winds were made at 52 stations in India. Out of these, at 44 stations all the observations were taken by means of pilot balloons and at 8 stations some observations were made by means of pilot balloons while the other observations by the radiowind method. Particulars of the stations, their co-ordinates and the approximate times of the regular pilot balloon and rawin ascents at each station are given in the table. All radiowind ascents have been indicated by means of an asterisk (*) against the scheduled hours.

Data from ascents made at the scheduled time or within two hours on either side of the scheduled times of regular observations have been used for averaging.

Data upto 9.0 km. a. m. s. l. are given under Table IV and data above 9.0 km. a. m. s. l. under Table V.

In Tables IV and V :

n—represents the number of observations,

V—represents the mean wind speed in knots irrespective of direction,

v—represents the resultant mean velocity in knots,

D—represents the direction of the resultant mean wind in degrees East of North.

Mean and resultant winds are given in this publication for the following heights:—

Surface, 0.15 km. a. g., 0.3, 0.6, 0.9, 1.5, 2.1, 3.0, 4.5, 5.4, 6.0, 7.2, 9.0, 10.5, 12.0, 14.1, 16.2, 18.0, 20.0, 23.0, 26.0, 30.0 and 35.0 km. a. m. s. l. Of these the levels 1.5, 3.0, 5.4, 7.2, 9.0, 12.0, 14.1 and 16.2 km. a. m. s. l. are considered as the best approximations to the standard pressure levels 850, 700, 500, 400, 300, 200, 150, and 100 mb. respectively.

Particulars of Pilot Balloon and Rawin Stations in India

Station	Lat. N.	Long. E.	Height of Anemometer head a. m. s. l. in metres	Date of opening	Approximate times of flight (IST)		
Agartala	23°53'	91°15'	17	28th November 1951	0130	0730	1430
Ahmedabad	23°04'	72°38'	61	19th May 1928	0130	0730	1430
Amausi	26°45'	80°53'	126	20th November 1950	0130	0730	1430
Ambala	30°23'	76°46'	282	1st April 1941	0130	0730	1430
Anantapur	14°41'	77°37'	364	12th February 1946		0730	1430
Asansol	23°41'	86°59'	126	29th May 1942	0130	0730	1430
Baghdogra	26°38'	88°19'	130	7th June 1953	0130	0730	1430
Bairagarh	23°17'	77°21'	524	26th February 1943	0130	0730	1430
Bamrauli	25°27'	81°44'	103	28th February 1930	0130	0830*	1430 2030*
Bangalore	12°58'	77°35'	936	19th May 1915	0130	0730	1430
Bareilly	28°22'	79°24'	180	12th January 1943		0730	1430
Begumpet	17°27'	78°28'	542	1st September 1929	0130	0730	1430
Bhagalpur	25°14'	86°57'	60	19th May 1950		0730	1430
Bhubaneshwar	20°15'	85°50'	45	5th December 1942	0130	0730	1430
Bhuj	23°15'	69°48'	111	14th September 1937	0130	0730	1430
Bikaner	28°00'	73°18'	228	8th October 1946	0130	0730	1430
Chikalhana	19°51'	75°24'	583	7th October 1951	0130	0730	1430
Cochin†	09°58'	76°14'	3	16th March 1942	0130	0730	1430
Darjeeling	27°03'	88°16'	2115	21st May 1956		0730	1430
Dum Dum	22°39'	88°27'	11	14th May 1921	0130	0830*	1430 2030*
Gadag	15°25'	75°38'	650	3rd May 1943	0130	0730	1430
Gaubati	26°05'	91°43'	55	12th March 1955	0130	0830*	1430 2030*
Gaya	24°45'	84°57'	113	19th March 1937	0130	0730	1430
Gopalpur	19°16'	84°53'	24	15th February 1946	0130	0730	1430
Gorakhpur	26°45'	83°22'	83	5th January 1943		0730	1430
Gwalior	26°14'	78°15'	211	7th May 1938	0130	0730	1430
Imphal	24°51'	93°58'	798	8th March 1952		0730	1430
Jabalpur	23°10'	79°57'	402	30th July 1928	0130	0730	1430
Jagdalpur	19°05'	82°02'	561	25th March 1948	0130	0730	1430
Jaipur	26°49'	75°48'	387	6th June 1953		0730	1430
Jamshedpur	22°49'	86°11'	144	23rd July 1942		0730	1430
Jharsuguda	21°55'	84°05'	234	1st May 1944	0130	0730	1430
Jodhpur	26°18'	73°01'	228	15th October 1934	0130	0830*	1430 2030*
Madras	13°00'	80°11'	29	8th April 1926	0130	0830*	1430 2030*
Mangalore	12°52'	74°51'	40	4th June 1928	0130	0730	1430
Masulipatnam	16°11'	81°08'	9	8th April 1942	0130	0730	1430
Minicoy	08°18'	73°00'	14	14th April 1941	0130	0730	1430
Mohanbari	27°29'	59°01'	110	1st June 1948	0130	0730	1430
Mussoorie	30°27'	78°05'	2050	3rd November 1955		0730	1430
Nagpur	21°09'	79°07'	316	23rd April 1943	0130	0830*	1430 2030*
New Delhi	28°35'	77°12'	227	20th October 1936	0130	0830*	1430 2030*
Poona	18°32'	73°51'	560	5th January 1925	0130	0730	1430
Port Blair	11°40'	92°43'	92	29th October 1945	0130	0730	1430
Raipur	21°14'	81°39'	308	15th July 1944	0130	0730	1430
Santacruz	19°05'	72°53'	12	14th May 1933	0130	0830*	1430 2030*
Tespur	26°37'	92°47'	78	12th August 1932	0130	0730	1430
Tiruchirapalli	10°46'	78°43'	95	22nd June 1936	0130	0730	1430
Trivandrum	08°29'	76°57'	72	8th December 1928	0130	0730	1430
Udaipur	24°35'	73°42'	587	24th June 1947	0130	0730	1430
Vengurla	15°52'	73°38'	8	22nd November 1941	0130	0730	1430
Veraval	20°54'	70°22'	16	13th October 1941	0130	0730	1430
Visakhapatnam	17°43'	83°14'	9	24th September 1928	0130	0730	1430

* Radiowind ascents.

† Naval Meteorological Office.

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

August 1956

Station	AGARTALA												AHMEDABAD											
	0130				0730				1430				0130				0730				1430			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	5.3	5.0	136	31	5.6	5.3	140	31	5.4	4.1	165	31	5.9	5.0	232	31	6.5	5.6	220	31	6.7	5.4	232
0.15 a. g. . .	25	13.8	13.3	164	28	10.4	9.9	145	31	10.6	8.7	181	19	14.7	12.4	251	25	11.7	9.8	232	31	9.4	7.9	244
0.3 a. m. s. l. . .	25	15.8	15.1	170	28	12.5	11.9	160	31	11.3	10.0	175	29	16.3	13.8	253	25	13.9	11.5	239	31	10.2	8.7	242
0.6 „ . . .	24	16.9	15.9	176	27	13.4	12.4	167	29	11.5	10.6	177	25	17.4	16.0	259	21	16.8	14.5	258	31	11.5	10.2	248
0.9 „ . . .	24	15.0	12.2	182	27	12.5	10.4	164	29	11.3	10.3	176	21	16.8	14.9	259	19	16.1	14.4	265	22	12.5	11.4	251
1.5 „ . . .	20	14.2	11.3	167	23	12.7	8.4	147	21	11.5	8.8	158	15	13.3	9.9	243	11	16.1	12.7	248	13	17.2	16.5	247
2.1 „ . . .	12	12.7	10.1	148	20	11.7	8.6	133	18	12.8	9.9	145	5	10.6	4.5	212	6	17.3	10.0	221	6	19.8	19.5	243
3.0 „ . . .	10	11.0	9.7	127	17	13.0	10.2	123	15	14.9	10.9	147	2	10.5	8.0	103	3	8.6	5.6	138	1	13.0	13.0	245
4.5 „ . . .	1	6.0	6.0	075	12	13.0	11.5	122	8	14.0	9.5	135					2	10.0	9.9	41				
5.4 „ . . .					8	13.7	11.2	130	6	14.5	11.0	119					2	12.0	7.1	255				
6.0 „ . . .					6	12.5	12.0	109	3	15.3	11.5	107					2	8.5	1.5	148				
7.2 „ . . .					2	10.0	9.9	130	1	20.0	20.0	125					2	10.5	9.3	079				
9.0 „ . . .					1	8.0	8.0	265	1	27.0	27.0	095					2	16.0	14.3	072				

Station	AMAUSI												AMBALA											
	0130				0730				1430				0130				0730				1430			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	8.3	0.8	023	31	4.3	1.8	080	31	6.5	2.5	033	31	3.4	2.1	086	31	2.9	1.6	109	31	9.5	0.6	203
0.15 a. g. . .	28	9.7	1.5	086	27	10.8	4.0	072	29	10.2	3.1	041	31	8.5	3.4	114	28	7.6	2.5	117	31	7.2	1.0	274
0.3 a. m. s. l. . .	28	9.7	1.9	085	27	11.3	4.3	078	29	10.2	2.7	055	31	4.4	2.2	106	28	4.5	2.1	106	31	4.9	0.4	249
0.6 „ . . .	26	11.3	2.5	095	25	13.5	4.8	090	29	10.9	2.4	055	31	9.0	3.5	137	28	9.7	2.8	152	31	6.9	1.5	260
0.9 „ . . .	24	13.5	4.3	103	24	13.8	4.7	085	29	12.2	2.3	039	30	9.1	1.6	182	28	9.7	1.3	187	30	8.2	2.3	267
1.5 „ . . .	23	13.5	3.7	062	20	15.7	6.6	074	24	12.3	2.1	055	28	10.4	2.2	270	27	10.0	1.6	328	28	8.8	1.7	283
2.1 „ . . .	21	11.7	3.9	057	20	16.5	7.6	081	14	12.0	4.3	104	22	10.0	0.7	063	20	10.0	1.3	037	23	8.6	1.6	286
3.0 „ . . .	10	7.9	4.3	107	16	10.7	6.7	088	5	12.8	7.3	098	15	8.7	4.6	143	19	8.5	1.8	105	20	8.2	0.4	285
4.5 „ . . .					10	10.7	4.7	097	3	12.3	3.8	093	4	11.3	6.6	140	13	7.8	1.4	060	13	8.3	2.1	133
5.4 „ . . .					7	12.4	7.9	111	1	8.0	8.0	270	2	13.5	13.4	176	11	8.8	2.1	158	11	10.0	4.8	168
6.0 „ . . .					6	16.0	12.0	120					2	11.0	10.4	153	9	10.0	5.8	127	10	11.6	5.8	194
7.2 „ . . .																	3	15.3	13.8	150	8	15.8	9.9	185
9.0 „ . . .																					5	21.0	9.7	222

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

August 1956

Station	ANANTAPUR								ASANSOL								BAGHDOGRA											
	0730				1430				0130				0730				1430				0130							
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D				
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	8.1	7.6	267	31	11.8	10.3	277	31	3.5	0.9	232	31	3.5	0.4	286	31	4.4	0.8	62	17	5.8	4.6					
0.15 a. g.	31	14.5	14.1	261	31	17.4	15.8	275	29	10.8	2.2	248	28	9.6	1.4	343	30	9.9	2.1	37	13	10.7	8.8					
0.3 a. m. s. l.									29	11.0	2.4	237	28	10.4	1.5	344	30	10.0	1.8	47	13	10.7	8.3					
0.6 "	31	17.8	17.4	264	31	19.0	17.6	274	29	12.1	1.7	229	27	14.1	2.9	353	29	11.2	2.3	57	12	11.5	10.5					
0.9 "	31	23.2	22.4	277	31	19.2	18.6	275	24	12.0	1.9	273	19	13.6	6.3	325	29	11.5	3.0	60	11	14.0	12.3					
1.5 "	31	24.3	23.0	287	31	18.0	17.5	277	19	11.0	0.6	333	14	11.3	3.5	308	19	12.8	1.3	18	7	12.4	12.4					
2.1 "	29	20.5	19.7	291	25	21.9	21.5	281	13	9.1	3.1	348	11	10.3	3.9	280	10	8.8	1.5	28	1	12.0	12.0					
3.0 "	27	17.3	16.3	289	14	21.8	21.4	285	6	7.8	3.8	108	6	10.2	2.1	284	5	6.6	2.1	18	1	21.0	21.0					
4.5 "	15	11.4	9.8	281	5	9.4	8.9	280	1	2.0	2.0	170	2	15.0	14.3	70	1	5.0	5.0	53								
5.4 "	12	6.7	3.3	319	3	3.7	1.3	270					2	10.0	9.8	75												
6.0 "	9	8.3	3.8	326	3	6.0	6.0	306					2	10.0	9.9	82												
7.2 "	5	9.2	6.4	87	2	8.5	3.6	76					1	10.0	10.0	106												
9.0 "	2	15.0	15.0	103	1	5.0	5.0	150																				

Station	BAGHDOGRA								BAIRAGARH								BAMRAULI															
	0730				1430				0130				0730				1430				0130											
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D				
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	4.6	4.2	70	31	4.4	3.6	95	31	6.0	5.8	262	31	8.8	8.2	272	31	9.0	8.2	271	31	3.5	0.4	1								
0.15 a. g.	24	8.5	8.2	75	31	6.3	5.0	98	29	17.0	15.7	271	25	14.9	13.4	270	29	10.6	9.4	272	27	10.1	2.2	2								
0.3 a. m. s. l.	24	9.0	8.5	80	31	6.9	5.1	100													27	10.8	2.3	2								
0.6 "	22	10.4	9.6	90	31	8.5	7.3	98	29	14.9	13.8	262	25	13.5	12.2	268	29	9.9	8.7	270	27	12.5	1.9	3								
0.9 "	21	10.9	10.0	90	30	9.6	7.7	102	23	17.4	15.7	277	20	18.7	16.0	288	29	12.9	11.3	277	24	12.8	2.4	3								
1.5 "	17	12.8	12.4	85	26	9.7	8.8	97	20	15.3	12.5	283	14	12.8	11.5	301	20	15.3	12.4	280	22	12.1	2.3	3								
2.1 "	15	15.1	14.7	85	23	12.7	12.3	96	17	10.9	7.8	278	9	10.1	8.5	285	11	10.6	9.7	283	10	6.0	2.4	3								
3.0 "	11	14.8	14.0	95	19	13.6	12.6	110	9	8.8	4.3	289	5	10.4	5.5	249	3	7.7	6.5	263	6	7.5	2.9	0								
4.5 "	4	15.0	14.6	90	8	14.0	8.0	120					2	7.0	6.1	142																
5.4 "	1	6.0	6.0	85	5	16.2	7.9	139					2	6.0	6.0	119																
6.0 "	1	12.0	12.0	75	4	12.0	4.5	179					2	7.5	7.5	121																
7.2 "					2	7.5	6.7	132					1	17.0	17.0	105																
9.0 "					1	9.0	9.0	115																								

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9·0 Km. above mean sea level

August 1956

Station	BAMRAULI												BANGALORE											
	0830*				1430				2030*				0130				0730				1430			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	5·0	0·9	228	31	6·2	1·3	313	29	4·4	1·4	242	31	9·6	9·0	272	31	10·3	9·6	273	31	11·4	10·7	277
0·15 a. g.	30	7·0	1·2	250	31	9·5	2·4	321	28	6·5	2·3	256	30	15·7	15·3	263	29	17·6	16·8	267	31	14·2	13·3	273
0·3 a. m. s. l.	30	7·5	1·5	248	31	10·5	1·8	336	28	6·9	2·2	152												
0·6 "	30	9·9	2·3	272	31	12·1	1·7	343	28	9·6	2·5	158												
0·9 "	31	11·5	2·6	282	29	13·0	2·3	351	28	11·6	2·2	290												
1·5 "	28	11·7	1·6	312	27	13·5	1·7	35	28	13·4	1·8	290	23	21·0	20·3	279	18	22·8	21·0	286	31	16·5	15·7	273
2·1 "	25	12·0	2·2	060	17	10·3	3·5	112	28	12·3	0·4	011	14	13·2	12·5	297	11	17·5	16·6	295	26	17·8	17·1	280
3·0 "	22	11·1	4·0	186	11	10·7	3·1	126	28	10·2	3·5	075	10	10·3	9·5	297	8	13·6	13·1	290	14	11·9	11·5	294
4·5 "	19	9·6	3·8	156	4	10·7	6·9	101	27	12·4	7·0	087	4	8·0	6·9	309	6	6·2	4·6	262	8	10·6	7·7	307
5·4 "	16	10·2	5·5	118	1	9·0	9·0	215	27	13·3	8·9	090	3	6·0	2·6	261	5	7·2	4·7	247	3	7·3	6·8	264
6·0 "	15	10·4	6·1	107	1	8·0	8·0	215	25	14·4	9·7	084	3	4·7	2·0	295	4	7·0	3·7	252	3	6·0	4·6	336
7·2 "	15	9·6	5·1	092	1	12·0	12·0	185	23	14·4	11·0	083					2 ^a	6·5	3·5	45				
9·0 "	11	12·0	9·6	088	1	9·0	9·0	135	20	15·1	12·9	087					1	10·0	10·0	95				

Station	BAREILLY								BEGUMPET								BHAGALPUR											
	0730				1430				0130				0730				1430				0730							
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	2·2	0·9	069	31	3·5	0·3	294	31	10·2	9·6	274	31	9·9	9·5	277	31	12·0	10·8	284	31	3·3	1·8	90				
0·15 a. g.	28	7·6	1·8	066	31	7·7	0·6	354	28	17·3	15·6	271	31	16·2	15·5	276	31	16·3	14·5	284	25	8·7	4·5	104				
0·3 a. m. s. l.	28	6·9	1·6	069	31	7·3	0·6	353													25	9·2	4·2	114				
0·6 "	28	12·6	2·5	121	31	8·7	1·0	308	28	11·8	10·5	269	31	12·1	11·7	276	31	14·4	12·8	287	21	12·1	9·2	102				
0·9 "	27	14·8	2·3	105	31	10·0	1·4	272	28	21·1	19·6	280	31	23·5	20·0	290	31	16·7	15·1	285	19	12·1	9·5	97				
1·5 "	24	14·4	3·3	073	24	12·8	1·2	226	27	22·7	21·5	291	24	23·5	21·5	302	28	19·0	17·6	288	14	16·3	14·1	88				
2·1 "	15	13·7	8·5	103	17	12·5	3·4	271	24	19·6	17·7	295	23	20·5	18·7	293	24	21·4	19·4	290	12	14·0	13·1	100				
3·0 "	14	15·0	12·5	103	10	9·3	0·9	122	15	14·2	11·8	302	21	15·1	13·4	297	10	14·8	12·2	303	8	9·4	6·6	104				
4·5 "	11	10·3	6·0	104	7	9·7	2·4	86	1	6·0	6·0	205	10	10·3	7·5	283	1	3·0	3·0	85	4	5·7	4·3	114				
5·4 "	9	12·3	8·4	135	5	9·4	7·6	230					9	8·1	4·8	306	1	3·0	3·0	30	2	7·0	6·7	142				
6·0 "	7	15·9	9·7	132	4	14·0	10·8	211					8	9·4	3·9	295					2	6·5	5·9	99				
7·2 "	6	11·0	7·0	145	3	18·3	12·4	232					1	15·0	15·0	260					1	4·0	4·0	130				
9·0 "	2	9·0	4·8	164																								

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

August 1956

Station	BHAGALPUR				BHUBANESHWAR								BHUJ											
	1430				0130				0730				1430				0130				0730			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	4.2	2.7	082	31	4.1	2.9	281	31	5.0	2.9	278	31	7.9	4.4	249	31	5.6	5.4	231	31	5.1	4.7	23
0.15 a. g.	28	9.1	5.7	094	27	11.0	6.7	277	30	10.7	6.9	281	27	9.8	4.6	252	29	16.1	15.0	235	30	14.3	13.5	23
0.3 a. m. s. l.	28	9.0	5.7	091	27	12.4	7.4	279	30	12.9	7.9	290	27	10.7	3.7	266	29	17.0	15.9	239	30	16.2	15.1	24
0.6 „	27	10.2	6.7	096	26	12.9	7.5	291	30	15.0	9.4	300	27	10.6	3.4	292	24	21.8	20.8	244	25	22.8	21.7	24
0.9 „	25	10.6	6.5	113	24	13.1	8.3	297	30	16.2	10.8	310	25	11.2	4.8	305	19	21.0	19.6	243	22	21.7	21.5	25
1.5 „	23	12.4	8.2	111	22	14.1	8.8	300	26	14.1	10.5	314	18	12.9	6.9	310	10	16.6	13.6	225	14	17.8	17.3	24
2.1 „	16	11.7	6.1	115	15	10.7	4.7	284	19	12.5	8.1	287	8	12.3	8.8	312	6	13.3	7.7	167	7	10.9	8.6	20
3.0 „	9	8.0	1.4	135	8	7.6	0.6	107	10	12.0	6.3	180	6	10.0	8.7	312	3	11.7	9.3	061	2	12.5	12.5	05
4.5 „	4	5.7	2.9	185					4	15.3	13.9	186	1	0.3	0.3	345	2	7.5	7.5	033	2	17.0	16.9	00
5.4 „	2	5.0	3.5	124					1	8.0	8.0	030	1	0.5	0.5	315					2	15.5	14.3	03
6.0 „	2	8.0	7.0	170					1	4.0	3.9	045									2	11.0	7.5	04
7.2 „	1	10.0	10.0	085																	2	12.0	10.5	12
9.0 „	1	11.0	11.0	055																	1	12.0	12.0	10

Station	BHUJ				BIKANER								CHIKALTHANA											
	1430				0130				0730				1430				0130				0730			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	6.5	6.1	232	31	4.8	3.8	215	31	5.0	4.1	225	31	5.3	3.5	204	31	9.4	9.1	273	31	7.0	6.6	26
0.15 a. g.	30	15.8	14.8	236	31	17.1	12.8	220	31	14.1	9.6	233	31	9.7	6.1	200	28	17.0	16.1	271	27	12.6	12.0	27
0.3 a. m. s. l.	30	15.8	15.1	237	31	12.7	8.5	212	31	10.6	7.1	233	31	8.4	5.3	195								
0.6 „	30	18.7	17.6	241	31	18.6	14.9	227	31	16.7	14.4	249	31	10.9	8.1	208								
0.9 „	28	18.7	17.1	245	31	16.4	11.6	230	30	16.1	10.9	241	31	11.0	7.5	207	28	19.9	18.7	273	27	16.4	15.2	27
1.5 „	12	15.2	14.2	238	31	9.1	3.5	190	26	9.0	2.6	154	30	10.2	6.1	208	28	23.5	22.5	271	24	21.4	19.3	27
2.1 „	6	12.5	10.9	241	27	8.3	3.3	129	24	9.5	6.8	111	24	9.5	3.3	177	25	18.2	16.6	267	20	20.7	20.0	27
3.0 „	2	16.0	2.9	149	21	8.0	4.3	041	21	10.1	7.0	092	15	8.9	3.1	040	19	11.6	10.8	269	11	12.2	11.4	27
4.5 „					3	8.0	4.2	092	13	10.4	3.7	017	10	10.3	3.3	065	5	4.6	3.6	249	4	5.5	3.8	12
5.4 „									10	11.5	3.8	040	11	9.2	1.3	216	2	3.5	1.5	016	3	5.3	5.0	06
6.0 „									8	10.6	3.4	205	10	10.6	5.1	288	1	5.0	4.8	155	3	7.0	6.9	06
7.2 „									4	8.5	6.6	260	8	11.7	8.9	312					2	9.5	9.4	07
9.0 „									2	13.0	12.1	230	4	9.7	7.6	335					1	24.0	24.0	06

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

August 1956

Station	CHIKALTHANA				COCHIN								DARJEELING											
	1430				0130				0730				1430				0730				1430			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
ft. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	13.2	12.6	277	31	2.5	2.2	308	31	2.4	1.9	325	31	8.1	7.5	297	31	0.8	0.5	107	31	1.3	0.9	128
15 a. g.	29	18.5	17.3	276	23	6.1	5.3	297	28	4.4	3.5	314	29	9.0	8.5	297	10	3.5	2.3	78	9	6.7	5.1	115
3 a. m. s. l.					23	8.1	7.2	301	28	7.9	7.2	306	29	11.1	10.7	296								
6 "					23	12.0	11.1	304	28	12.6	11.6	305	29	14.3	13.6	300								
9 "	29	19.7	18.6	276	23	13.7	12.8	304	28	13.7	12.8	305	28	16.3	15.5	302								
15 "	28	18.3	16.6	277	19	14.0	13.6	305	27	14.7	14.1	301	27	17.9	16.9	304								
1 "	21	17.3	15.4	281	14	12.1	11.7	299	26	14.7	14.3	300	24	18.0	17.1	305								
10 "	4	14.3	12.8	268	5	8.6	7.9	304	12	13.5	12.5	289	19	14.5	14.0	310	9	9.5	9.4	101	8	9.9	9.7	100
5 "									3	6.7	4.1	295	12	11.8	11.4	299	8	20.4	19.0	100	1	23.0	23.0	85
4 "									1	5.0	5.0	360	7	9.4	8.1	290	5	18.8	16.7	96				
0 "									1	8.0	8.0	065	4	10.5	9.8	274	4	17.3	13.9	97				
2 "									1	9.0	9.0	085	1	4.0	4.0	360	2	8.0	5.5	145				
0 "																	2	9.5	5.7	33				

Station	DUM DUM								GADAG															
	0130				0830*				1430				2030*				0130				0730			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
ft. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	3.5	1.4	152	31	5.9	2.7	131	31	5.1	3.1	142	30	4.9	2.8	164	31	10.6	9.9	256	31	9.9	9.0	254
15 a. g.	30	9.3	4.4	172	31	10.0	4.1	223	29	8.9	5.1	150	29	12.5	8.2	176	27	21.3	20.7	259	30	18.3	17.9	255
3 a. m. s. l.	29	11.0	6.6	207	31	9.3	2.4	148	29	10.6	6.4	152	29	12.8	8.7	176								
6 "	25	11.2	7.2	205	31	9.3	2.2	152	28	11.3	6.4	154	29	12.8	8.3	179								
9 "	21	10.2	6.8	208	31	9.9	2.0	170	27	11.6	5.7	147	29	12.2	7.4	179	27	23.8	23.0	267	28	21.3	20.1	267
15 "	20	9.7	5.8	200	31	11.2	2.7	163	22	11.5	3.9	137	29	11.5	5.4	172	17	22.2	21.7	286	13	24.1	23.0	286
1 "	14	6.8	2.3	150	31	12.3	3.4	145	18	11.2	5.4	130	29	11.7	4.1	157	10	12.5	11.5	288	7	15.3	14.6	304
0 "	12	7.6	3.3	160	30	12.2	4.2	131	10	11.6	9.7	110	29	11.9	5.7	145	9	7.1	6.4	273	3	3.7	3.5	271
5 "	2	7.5	6.7	100	29	14.2	5.7	140	5	10.2	7.3	105	29	11.7	6.5	133	3	5.0	5.0	255	1	3.0	3.0	005
4 "					27	13.2	5.8	104	3	7.7	6.5	85	29	11.7	7.2	110	1	4.0	4.0	135				
0 "					27	13.9	8.0	127	1	6.0	6.0	30	29	12.7	7.8	105								
2 "					26	15.4	11.8	118					29	13.4	10.0	103								
0 "					24	19.5	17.4	110					25	16.8	12.2	098								

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

August 1956

Station.	GADAG				GAUHATI										GAYA								
	1430				0130				0830*				1430				2030*				0130		
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface	31	11.1	10.6	265	31	2.5	0.4	124	30	3.5	2.1	055	31	4.3	1.5	360	28	3.1	0.9	083	31	3.8	0.6
0.15 a. g.	30	19.4	18.9	265	26	5.0	1.3	256	29	4.9	3.3	056	28	6.2	2.0	350	24	5.1	1.2	094	29	10.1	1.1
0.3 a. m. s. l.					26	5.3	1.5	281	29	5.8	3.7	056	28	6.5	2.8	16	24	5.9	1.2	093	29	10.3	1.0
0.6 "					25	5.9	1.1	330	29	7.8	5.0	071	28	5.7	2.0	11	24	7.6	1.5	099	29	11.9	1.3
0.9 "	30	21.3	20.7	271	22	6.9	1.3	185	29	9.3	5.4	084	28	5.9	0.7	357	23	8.5	1.8	097	24	11.6	1.9
1.5 "	24	20.9	20.6	275	21	8.4	3.5	175	29	10.0	5.4	116	23	7.7	3.9	175	26	9.0	3.4	153	23	10.8	2.1
2.1 "	10	15.5	14.5	282	18	8.7	3.0	187	30	8.6	5.9	129	21	9.4	5.0	177	26	9.1	5.1	157	18	9.3	5.5
3.0 "	1	3.0	3.0	25	14	8.6	4.6	115	30	13.1	6.3	131	19	9.3	4.6	157	27	10.5	6.7	137	13	12.2	10.4
4.5 "	1	6.0	6.0	45	3	8.3	7.7	223	27	12.7	7.1	150	12	11.3	5.9	99	26	12.7	5.5	131			
5.4 "	1	10.0	10.0	55					26	12.7	7.2	153	7	14.9	5.9	110	25	11.4	6.0	135			
6.0 "	1	15.0	15.0	80					23	12.0	7.4	151	6	12.4	6.7	95	24	11.3	5.6	129			
7.2 "	1	21.0	21.0	85					22	9.7	4.7	141	4	12.5	6.5	60	24	12.0	5.9	124			
9.0 "									18	10.3	6.9	113	3	9.3	2.4	82	22	10.5	5.8	105			

Station.	GAYA				GOPALPUR										GORAKHI								
	0730				1430				0130				0730				1430				0730		
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface	31	2.3	1.4	115	31	6.4	1.3	031	31	4.0	2.6	263	31	4.0	2.7	245	31	8.9	6.7	198	31	2.9	2.
0.15 a. g.	29	8.5	2.2	126	29	9.8	1.9	030	30	10.8	7.9	260	29	9.7	6.6	249	31	12.0	8.5	199	25	8.1	6.
0.3 a. m. s. l.	29	8.9	2.0	132	29	6.9	2.0	026	30	10.5	7.9	274	29	10.2	6.9	259	31	10.2	6.1	211	25	10.3	8.
0.6 "	28	11.9	1.5	140	29	11.4	3.2	042	30	10.3	8.3	278	29	11.2	7.4	279	31	9.1	3.7	260	23	14.3	10
0.9 "	23	12.1	5.1	100	28	12.4	3.3	060	30	12.2	9.9	291	29	12.9	9.7	295	31	10.4	6.5	295	22	16.0	11
1.5 "	20	13.4	6.6	89	23	12.6	4.9	272	29	14.2	11.6	298	29	17.1	14.1	304	31	14.6	10.7	302	17	18.1	11
2.1 "	18	14.3	7.9	95	16	12.3	8.9	111	23	12.0	9.3	293	29	14.8	11.1	297	27	13.6	10.8	302	15	17.1	11
3.0 "	15	15.7	11.3	106	8	11.5	8.3	255	17	11.1	6.6	269	22	12.2	8.5	276	22	13.1	8.8	290	10	9.8	8
4.5 "	9	12.3	9.2	136	3	4.7	2.3	204	4	12.5	9.2	94	12	10.9	3.3	353	17	13.9	6.2	281	5	11.2	10
5.4 "	6	10.7	9.3	146	2	6.0	0.7	091	1	10.0	10.0	105	8	10.9	3.3	061	11	14.0	2.4	316	4	9.7	7
6.0 "	5	7.6	6.1	123	2	4.0	1.5	074	1	12.0	12.0	105					9	14.2	4.1	056	3	10.0	6
7.2 "	3	10.7	9.6	97	1	8.0	8.0	080									6	12.5	2.1	114	1	9.0	!
9.0 "																	4	16.3	12.6	85			

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

August 1956

Station.	JAIPUR				JAMSHEDPUR				JHARSUGUDA															
	0730 *				1430				0730				1430				0130				0730			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	4.5	2.8	292	31	6.4	3.7	268	31	4.1	1.1	275	31	5.7	1.2	65	26	5.0	3.2	217	31	3.3	2.0	
0.15 a. g.	29	12.7	7.5	289	30	10.2	5.6	262	30	7.4	1.5	258	27	7.9	1.5	76	25	8.5	5.5	249	21	7.9	3.4	
0.3 a. m. s. l.									30	7.6	1.5	264	27	8.1	1.5	75	25	7.5	4.8	228	21	6.7	3.0	
0.6 "	29	14.9	9.3	292	30	10.6	6.0	267	28	11.3	2.3	245	27	9.2	2.0	54	25	11.3	7.4	273	21	11.0	4.9	
0.9 "	23	18.4	15.2	290	29	10.9	5.3	279	25	13.6	3.7	339	27	10.3	2.1	38	22	12.9	9.3	280	17	11.8	5.1	
1.5 "	19	11.3	7.1	282	26	11.6	2.5	288	15	11.8	5.5	14	19	10.7	3.4	21	19	11.7	7.5	297	13	11.6	5.1	
2.1 "	15	7.5	0.7	072	16	9.1	6.3	265	11	9.1	2.9	27	13	9.2	1.7	30	11	9.8	4.6	323	12	10.6	5.6	
3.0 "	11	7.5	3.9	083	8	10.6	7.8	098	10	7.3	2.5	184	7	7.1	3.9	20	4	9.3	2.4	163	10	8.6	2.9	
4.5 "	9	10.8	7.1	062	3	9.3	2.8	160	6	8.8	5.6	80	3	8.0	7.7	91	2	12.0	6.5	160	2	4.5	4.5	
5.4 "	6	10.7	6.7	097	3	13.7	7.1	202	3	4.7	4.5	105	3	8.3	7.7	70					1	7.0	7.0	
6.0 "	4	11.0	8.1	121	3	14.3	7.8	188	2	11.0	11.0	107	2	6.5	6.5	97								
7.2 "	2	17.5	2.6	265	1	14.0	14.0	305	1	14.0	14.0	105												
9.0 "									1	13.0	13.0	120												

Station.	JHARSUGUDA				JODHPUR				MADRAS															
	1430				0130				0830*				1430				2030*				0130			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	5.7	3.6	242	31	5.1	3.7	231	29	8.7	6.8	245	31	8.1	6.4	225	27	5.7	5.2	234	31	7.7	6.7	
0.15 a. g.	27	9.6	6.0	253	31	14.0	10.7	228	29	10.4	7.5	240	31	9.6	7.0	212	27	7.4	6.1	233	29	15.5	13.9	
0.3 a. m. s. l.	27	9.6	6.4	245	31	11.4	8.5	224	29	9.5	7.0	240	31	9.6	7.0	212	27	6.8	5.6	235	29	17.9	16.3	
0.6 "	27	10.6	6.3	259	31	21.9	11.9	232	29	12.5	9.3	235	31	10.7	8.0	213	27	9.5	7.4	235	29	19.5	17.9	
0.9 "	25	10.6	4.9	282	31	15.0	10.7	231	29	15.7	11.4	230	31	11.2	8.3	212	26	12.4	9.7	231	29	19.5	17.9	
1.5 "	22	12.5	5.4	3.3	27	12.4	6.6	195	27	14.6	9.0	205	20	8.5	6.1	193	26	12.4	8.7	225	29	17.4	16.3	
2.1 "	18	13.8	6.5	339	19	6.7	3.8	120	27	12.5	7.6	164	8	8.5	5.5	147	26	10.0	3.9	206	23	17.0	16.3	
3.0 "	12	12.4	6.9	050	16	8.0	4.9	065	27	10.5	8.2	087	4	10.0	5.9	113	23	7.9	6.1	050	14	12.6	11.6	
4.5 "	7	9.9	9.0	083	1	9.0	9.0	040	26	14.3	10.5	081	1	4.0	4.0	150	22	10.4	5.6	036				
5.4 "	5	9.0	8.6	095	1	8.0	8.0	220	25	13.3	7.1	099	1	6.0	6.0	115	20	11.4	4.3	020				
6.0 "	4	11.5	11.3	099	1	6.0	6.0	180	25	12.8	7.3	097	1	6.0	6.0	155	20	11.9	4.3	021				
7.2 "	1	17.0	17.0	105					23	12.7	7.6	082					20	12.5	6.1	055				
9.0 "	1	25.0	25.0	095					21	13.5	9.0	089					13	12.7	7.0	090				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

August 1956

Station	MOHANBARI												MUSSOORIE								NAGPUR			
	0130				0730				1430				0730				1430				0130			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	0.6	0.5	041	31	1.3	0.9	76	31	2.5	1.6	32	31	1.3	0.3	167	31	2.2	1.9	178	31	4.9	4.2	29
0.15 a. g. . .	19	4.7	2.8	037	25	4.4	2.7	71	29	5.3	3.3	34	18	5.0	2.1	127	4	7.3	5.5	161	30	13.2	11.6	29
0.3 a. m. s. l. .	19	4.6	2.5	053	25	4.5	2.8	76	29	5.3	3.3	32												
0.6 „ . . .	20	3.7	1.8	058	22	6.0	2.4	63	29	4.3	1.9	45									30	15.4	13.6	29
0.9 „ . . .	20	4.5	2.6	077	18	6.6	1.0	57	27	4.8	0.5	195									29	16.8	15.2	30
1.5 „ . . .	20	5.5	0.8	125	15	7.3	1.1	228	24	6.5	4.1	221									29	16.0	14.3	29
2.1 „ . . .	14	5.0	1.5	127	13	6.3	1.1	182	23	7.9	5.7	197	18	3.7	1.0	162	4	6.7	4.6	165	23	12.2	10.1	29
3.0 „ . . .	12	4.3	3.1	155	10	6.0	4.2	113	19	8.9	5.7	106	13	6.5	4.1	132	3	10.0	4.2	103	15	9.6	6.1	29
4.5 „ . . .	3	6.7	6.3	132	7	7.0	5.4	140	14	9.6	3.3	208	12	8.8	5.0	132	1	5.0	5.0	320	3	9.0	1.9	10
5.4 „ . . .	2	10.0	7.1	120	5	8.8	8.6	85	11	10.6	1.4	235	10	10.3	4.2	190	1	4.0	4.0	350	2	13.0	7.1	11
6.0 „ . . .					4	12.0	11.7	90	11	11.8	1.8	100	10	10.3	5.1	200								
7.2 „ . . .					4	18.0	17.5	78	6	15.5	0.8	39	7	13.4	6.8	185								
9.0 „ . . .									3	20.3	6.5	114	5	11.8	8.1	246								

Station	NAGPUR												NEW DELHI											
	0830 *				1430				2030*				0130				0830*				1430			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	29	7.8	7.0	280	31	8.4	7.5	282	21	5.4	4.1	304	31	3.5	2.0	248	31	6.0	2.5	277	31	6.5	1.8	30
0.15 a. g. . .	29	9.6	8.7	282	29	11.4	10.4	290	21	7.2	5.8	299	31	10.1	4.6	248	31	7.6	2.8	289	29	8.7	3.2	3
0.3 a. m. s. l. .													31	7.9	3.3	241	31	7.0	2.6	285	29	8.8	2.8	3
0.6 „ . . .	29	11.4	10.4	288	29	11.9	10.7	285	21	5.4	7.2	298	31	10.5	4.0	274	31	9.7	3.1	297	29	8.5	3.3	3
0.9 „ . . .	29	15.4	13.7	298	29	12.7	10.8	288	21	12.9	11.6	293	30	10.0	2.3	300	31	12.1	3.0	307	29	9.7	3.8	3
1.5 „ . . .	28	15.0	13.1	298	28	15.0	12.5	291	21	13.9	12.3	288	29	10.6	2.4	325	30	13.1	2.1	332	26	10.2	2.6	2
2.1 „ . . .	27	12.7	10.6	293	25	15.4	12.6	297	21	13.4	11.9	288	27	10.1	2.7	37	29	12.0	1.1	075	26	11.0	2.4	2
3.0 „ . . .	26	10.6	7.7	302	15	15.5	13.1	295	21	11.8	9.0	296	20	8.5	2.0	60	30	11.2	4.0	087	23	11.1	2.4	
4.5 „ . . .	24	8.2	1.2	017	5	6.8	4.2	323	20	8.1	3.9	337	1	7.0	7.0	140	28	10.0	3.3	066	22	13.3	4.0	
5.4 „ . . .	23	9.2	4.3	071	3	5.0	2.7	124	19	7.9	2.9	021	1	5.0	5.0	165	28	11.0	2.6	083	21	13.6	6.2	1
6.0 „ . . .	21	9.8	6.3	073	2	5.0	2.1	130	13	8.7	3.2	040	1	6.0	6.0	155	24	10.1	3.3	105	21	14.1	6.7	1
7.2 „ . . .	18	12.3	8.0	079	1	17.0	17.0	75	13	15.4	6.9	077					24	10.6	3.6	284	17	13.5	3.3	1
9.0 „ . . .	13	17.9	1.8	076	1	15.0	15.0	65	8	19.0	18.2	080					23	12.6	2.1	101	14	13.6	1.1	

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

August 1956

Station	NEW DELHI				POONA												PORT BLAIR							
	2030*				0130				0730				1430				0130				0730			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	3.4	1.1	277	31	4.1	3.9	261	31	3.3	3.1	261	31	8.9	8.6	265	31	8.3	7.9	233	31	8.5	8.0	238
0.15 a. g.	31	4.8	1.9	286	28	12.7	12.5	257	28	12.7	12.5	258	29	18.7	18.2	264	29	17.7	17.2	238	24	16.2	15.8	236
0.3 a. m. s. l.	31	4.2	1.7	286													29	18.9	18.3	239	24	18.5	18.1	237
0.6 "	31	6.7	3.1	287	28	6.4	6.2	257	28	6.3	6.2	259	29	13.2	12.7	264	28	22.4	21.9	243	23	21.3	21.0	241
0.9 "	31	9.0	4.1	295	28	16.0	15.5	260	28	16.4	15.7	262	26	18.6	18.3	266	26	19.7	19.2	247	23	20.6	20.2	245
1.5 "	31	10.0	5.2	291	8	17.5	17.5	294	13	20.8	18.1	272	14	19.9	19.4	266	18	14.3	13.7	252	19	17.9	17.4	251
2.1 "	31	9.7	4.5	300	2	7.0	6.1	001	6	14.5	10.0	288	2	21.0	20.9	279	14	11.4	10.9	251	10	12.9	12.4	259
3.0 "	31	9.5	3.2	004	1	5.0	5.0	290	2	8.5	2.1	003					6	9.7	9.2	246	3	9.0	8.0	247
4.5 "	31	9.5	3.2	056					2	7.0	5.1	233									1	1.0	1.0	90
5.4 "	31	10.1	4.1	090																	1	5.0	5.0	225
6.0 "	30	10.4	3.5	103																				
7.2 "	30	10.0	3.4	100																				
9.0 "	28	11.4	4.7	090																				

Station	PORT BLAIR				RAIPUR												SANTACRUZ							
	1430				0130				0730				1430				0130				0830*			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	13.4	12.8	239	31	4.5	3.9	246	31	4.4	3.8	248	31	5.3	4.6	269	31	7.3	6.4	250	31	8.5	7.9	269
0.15 a. g.	23	16.7	16.3	240	22	14.7	12.5	254	29	13.0	10.9	261	28	12.5	10.2	265	28	16.4	15.7	247	26	18.0	16.0	267
0.3 a. m. s. l.	23	17.0	16.6	242													28	18.1	17.7	251	26	19.0	16.6	266
0.6 "	22	20.4	20.0	243	22	16.1	13.6	271	29	15.9	13.1	286	28	14.0	11.6	270	28	20.9	20.4	254	26	19.0	17.0	266
0.9 "	16	25.4	24.9	245	22	17.2	14.2	285	29	16.7	13.7	293	27	14.7	11.7	277	17	19.9	19.0	262	26	19.3	16.6	265
1.5 "	9	19.2	18.7	257	22	16.9	13.1	294	26	15.4	13.4	300	24	16.3	12.7	291	7	15.0	13.5	257	26	19.3	16.8	263
2.1 "	3	16.3	15.8	262	16	14.6	9.8	294	20	12.7	8.9	316	15	17.7	10.4	303	2	11.0	8.3	254	26	17.3	15.2	260
3.0 "	1	9.0	9.0	295	12	9.8	5.9	292	17	10.3	5.6	315	10	15.6	7.2	319					26	17.0	14.6	261
4.5 "									5	6.6	1.8	079	5	9.6	4.2	050					23	11.2	8.5	267
5.4 "									5	8.2	7.3	079	3	10.0	9.3	099					23	8.6	3.2	290
6.0 "									4	8.0	7.1	079	2	14.5	14.3	116					23	7.2	1.9	346
7.2 "									3	14.0	13.6	093	1	22.0	22.0	110					23	9.0	5.5	077
9.0 "									1	13.0	13.0	085									21	15.4	13.6	085

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

August 1956

Station	SANTACRUZ								TEZPUR												TIRUCHIRAPALI			
	1430				2030*				0130				0730				1430				0130			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	10.4	9.7	265	31	9.2	7.5	278	31	1.3	0.6	142	31	2.2	1.1	115	31	2.7	0.6	155	31	15.0	14.6	2
0.15 a. g.	29	16.4	15.3	256	26	18.0	15.1	261	23	6.3	1.6	217	24	6.4	2.8	135	30	6.3	0.8	128	23	17.8	17.2	2
0.3 a. m. s. l.	29	19.0	17.3	260	26	17.9	13.4	261	23	5.5	2.0	224	24	6.8	2.9	138	30	6.5	0.9	127	23	19.1	18.6	2
0.6 "	29	20.8	19.0	263	26	17.9	15.2	262	23	8.3	3.7	259	21	7.4	1.9	105	30	6.7	2.3	146	23	23.6	23.4	2
0.9 "	16	20.1	18.5	267	26	18.2	5.6	264	22	8.2	3.9	264	20	7.8	2.0	140	28	7.7	3.1	167	23	23.5	23.1	2
1.5 "	7	20.6	19.8	254	26	19.2	16.8	260	18	7.5	2.5	207	16	10.4	4.2	108	27	9.7	4.0	193	22	18.8	18.2	2
2.1 "					26	19.6	17.7	258	13	8.6	3.9	221	13	9.6	5.7	97	26	10.7	5.2	210	21	16.4	14.7	2
3.0 "					26	18.3	15.7	263	6	8.0	7.0	107	9	10.0	5.5	92	20	12.1	3.9	195	18	12.4	11.2	2
4.5 "					26	12.2	8.6	266					4	14.3	13.7	110	17	12.0	2.3	151	4	7.0	6.7	2
5.4 "					25	9.7	3.9	259					1	26.0	26.0	95	14	11.6	2.7	135				
6.0 "					25	9.0	1.7	271					1	21.0	21.0	90	13	13.0	3.9	100				
7.2 "					25	9.8	3.0	073									8	12.0	7.3	102				
9.0 "					19	15.2	13.5	084									2	9.0	8.9	99				

Station	TIRUCHIRAPALLI								TRIVANDRUM												UDAIPUR							
	0730				1430				0130				0730				1430				0130							
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	12.6	12.4	273	31	16.1	14.9	285	31	3.9	3.7	324	31	3.3	3.0	328	31	8.2	7.9	310	31	1.0	0.9	2				
0.15 a. g.	30	17.2	17.0	274	29	16.6	15.5	286	31	14.7	14.3	320	28	12.1	11.5	324	31	15.2	14.9	296	29	6.8	5.0	2				
0.3 a. m. s. l.	30	19.3	19.1	275	29	17.2	16.4	283	31	17.7	17.1	320	28	15.7	15.0	319	31	17.3	17.1	295								
0.6 "	30	25.4	24.9	276	29	19.4	19.0	275	31	23.3	22.4	314	25	22.5	21.3	311	31	22.6	22.2	302								
0.9 "	30	25.1	24.3	279	29	18.2	17.3	273	28	25.9	24.7	310	23	24.2	23.2	312	30	24.1	23.3	307	29	9.4	6.7	24				
1.5 "	30	20.9	19.5	279	28	17.6	17.1	269	24	25.1	24.4	306	20	23.9	23.1	309	26	23.7	23.1	309	18	12.9	6.1	25				
2.1 "	29	17.4	15.9	280	25	17.6	16.8	270	17	24.1	23.7	297	15	20.7	19.9	305	19	21.6	21.1	310	10	6.5	2.0	20				
3.0 "	27	14.1	13.2	285	22	15.5	15.1	274	1	15.0	15.0	340	9	11.2	10.1	298	10	15.6	15.1	302	8	5.5	1.5	17				
4.5 "	17	9.9	8.6	293	12	13.3	12.5	289					3	4.7	2.7	272	5	9.6	8.9	281								
5.4 "	14	10.6	7.2	279	9	10.4	8.7	299					2	5.5	2.2	006	2	8.5	8.3	283								
6.0 "	12	8.5	2.7	240	7	7.4	5.3	312									1	5.0	5.0	255								
7.2 "	4	7.0	3.6	105	3	5.0	3.0	211																				
9.0 "					1	26.0	26.0	115																				

TABLE IV.—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

August 1956

Station	UDAIPUR								VENGURLA								VERAVAL							
	0730				1430				0130				0730				1430				0130			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface.	31	1.6	1.3	230	31	3.5	3.2	225	31	3.5	3.1	263	31	3.3	2.9	263	31	6.2	5.4	267	31	15.4	13.8	250
15 a. g.	29	7.0	5.6	238	31	9.6	7.6	227	31	12.7	11.1	274	29	12.3	10.5	269	30	14.0	12.9	272	30	18.8	17.7	251
3 a. m. s. l.									31	16.7	15.2	275	29	16.6	15.2	273	30	18.7	17.3	276	30	20.9	20.1	257
6 "									25	19.0	17.5	283	25	20.6	19.1	276	26	22.1	20.8	280	29	22.6	21.6	257
9 "	29	9.0	6.9	249	31	10.6	8.5	230	19	19.1	17.7	290	17	23.6	22.8	279	15	22.5	21.2	286	19	21.7	20.5	258
5 "	18	13.9	10.5	240	28	11.5	7.0	240	9	14.5	13.9	294	8	15.7	15.4	288	6	18.5	17.8	293	8	19.1	17.4	244
1 "	15	8.4	5.1	195	10	9.3	4.9	232	6	12.8	11.5	292	4	14.0	12.5	294	2	15.5	15.5	312	2	10.0	9.1	115
0 "	7	6.0	2.6	111	5	10.2	3.5	192	3	9.3	1.5	331	1	1.0	1.0	150	2	14.0	14.0	307	2	11.5	10.5	126
5 "	2	6.5	6.3	79	3	11.3	6.0	126	3	8.0	2.8	294	1	8.0	8.0	015	1	9.0	9.0	245				
4 "	2	9.5	4.5	134	1	8.0	8.0	235	2	6.5	6.5	73					1	1.0	1.0	040				
0 "	2	9.5	5.6	143					1	10.0	10.0	70					1	2.0	2.0	130				
2 "	2	8.0	7.4	98					1	12.0	12.0	90					1	10.0	10.0	95				
0 "																	1	19.0	19.0	115				

Station	VERAVAL								VISAKHAPATNAM											
	0730				1430				0130				0730				1430			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface.	31	13.1	11.7	255	31	13.0	12.1	256	31	4.0	3.5	247	31	5.6	5.3	235	31	10.9	7.1	220
15 a. g.	30	19.8	18.4	260	30	18.7	17.9	257	29	8.3	7.3	254	30	8.8	8.1	235	30	12.3	9.7	223
3 a. m. s. l.	30	22.3	21.3	261	30	20.7	19.8	264	29	9.8	8.7	258	30	11.2	9.5	252	30	12.0	8.7	229
6 "	25	24.6	23.2	262	30	23.4	22.2	266	29	12.0	10.2	272	30	12.5	10.4	259	30	11.6	8.4	259
9 "	15	21.1	19.4	266	22	22.1	20.5	268	28	12.9	10.7	287	29	13.6	11.0	286	29	12.0	9.1	279
5 "	4	15.7	11.3	296	10	15.0	12.9	261	26	15.0	12.9	294	28	16.5	13.1	298	28	16.3	13.3	298
1 "	1	3.0	3.0	155	3	4.7	3.7	343	25	12.4	10.2	297	26	12.5	9.1	303	24	16.1	11.9	291
0 "					1	7.0	7.0	330	20	11.3	8.3	293	22	10.7	6.0	305	20	15.4	11.8	285
5 "					1	12.0	12.0	050	4	7.0	1.0	350	5	15.2	1.8	346	13	14.2	8.5	288
4 "					1	11.0	11.0	220					3	11.0	3.5	160	8	11.6	5.6	292
0 "					1	5.0	5.0	065					1	21.0	21.0	120	4	4.5	3.8	85
2 "													1	19.0	19.0	105	3	11.7	10.5	73
0 "																	2	19.0	19.0	95

TABLE V.—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds above 9.0 Km. above mean sea level

August 1956

Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v					
	AGARTALA					BHUJ					GAUHATI					MADRAS					NEW DELH							
	1430 hrs.					0730 hrs.					2030 hrs.*					1430 hrs.					1430 hrs.							
10.5	1	36.0	36.0	120	10.5	1	12.0	12.0	115	10.5	21	12.1	5.8	077	10.5	1	31.0	31.0	090	10.5	14	15.4	2.2					
12.0	1	44.0	44.0	090	12.0	1	18.0	18.0	120	12.0	18	16.4	2.6	050						12.0	11	16.3	5.4					
14.1	1	26.0	26.0	125						14.1	4	23.0	19.9	061			2030 hrs.*				14.1	8	16.3	10.7				
16.2	1	39.0	39.0	120		BIKANER					GOPALPUR				10.5	17	26.1	25.1	093	16.2	6	21.7	14.6					
	AHMEDABAD					0730 hrs.					1430 hrs.				12.0	14	47.6	47.0	090	18.0	3	33.7	32.2		2030 hrs.*			
	0730 hrs.				10.5	1	13.0	13.0	225	10.5	2	27.0	25.9	094	16.2	5	69.2	69.0	084	10.5	24	13.6	7.6					
10.5	2	20.5	18.2	092		1430 hrs.				12.0	2	36.5	36.4	103	18.0	2	99.0	98.9	087	12.0	18	17.2	9.5					
12.0	1	19.0	19.0	110	10.5	1	8.0	8.0	200		GORAKHPUR				20.0	1	73.0	73.0	085	14.1	16	18.2	10.4					
	AMBALA				12.0	1	10.0	10.0	245		1430 hrs.					MOHANBARI				16.2	7	26.1	17.7					
	1430 hrs.				14.1	1	40.0	40.0	075	10.5	1	6.0	6.0	305	10.5	2	12.0	1.1	049	18.0	1	19.0	19.0					
10.5	5	24.2	10.2	218	16.2	1	11.0	11.0	125	12.0	1	3.0	3.0	015	12.0	2	16.0	5.7	133		RAIPUR							
12.0	3	24.0	20.5	249	18.0	1	25.0	25.0	205		JABALPUR				14.1	1	13.0	13.0	080	10.5	1	38.0	38.0		0730 hrs.			
14.1	2	15.0	11.1	159	20.0	1	35.0	35.0	245	10.5	1	20.0	20.0	115	16.2	1	32.0	32.0	075		SANTACRU							
16.2	1	11.0	11.0	160		CHIKALTHANA				12.0	1	32.0	32.0	125		MUSSOORIE				10.5	16	24.1	21.1		0830 hrs.			
18.0	1	13.0	13.0	105	10.5	1	27.0	27.0	070		0730 hrs.				10.5	4	15.7	15.2	239	12.0	12	39.2	37.9					
20.0	1	23.0	23.0	115		DARJEELING				10.5	1	24.0	24.0	125	10.5	4	15.7	15.2	239	14.1	11	52.5	51.6					
23.0	1	29.0	29.0	125	10.5	1	12.0	12.0	335	12.0	1	30.0	30.0	135	12.0	1	10.0	10.0	215	16.2	9	54.0	53.1					
26.0	1	44.0	44.0	130		0730 hrs.				10.5	2	12.5	2.9	135		NAGPUR				18.0	4	47.5	47.5					
80.0	1	48.0	48.0	125	12.0	1	18.0	18.0	340		DUM DUM				10.5	10	28.7	27.7	082	20.0	1	68.0	68.0		0830 hrs.*			
35.0	1	58.0	58.0	130	14.1	1	18.0	18.0	340		0830 hrs.*				10.5	10	40.2	39.5	084		TEZPUR							
	BAGHDOGRA					0830 hrs.*				10.5	18	14.3	12.8	101	16.2	4	52.5	51.3	089	10.5	18	23.0	22.2		1430 hrs.			
	1430 hrs.				10.5	21	25.9	22.6	115	12.0	14	16.7	16.0	098	18.0	1	74.0	74.0	075	12.0	15	35.5	34.4					
10.5	1	9.0	9.0	115		BAMRAULI				14.1	8	31.5	28.2	090	20.0	1	69.0	69.0	070	14.1	11	55.0	51.5					
12.0	1	12.0	12.0	100	12.0	16	31.6	29.7	090		0830 hrs.*				16.2	4	52.5	51.3	089	16.2	6	63.3	62.8					
	0830 hrs.*				14.1	6	40.8	40.3	080	14.1	8	31.5	28.2	090		1430 hrs.				18.0	3	51.0	50.3					
10.5	6	14.8	12.7	088	10.5	22	21.6	18.3	097	16.2	6	33.8	31.5	086	10.5	1	15.0	15.0	095		VENGUR							
12.0	8	19.9	19.4	090	12.0	14	28.8	28.0	085	10.5	11	16.4	11.9	120	10.5	7	31.0	30.4	083	10.5	1	12.0	12.0		1430 hrs.			
14.1	2	27.0	25.0	104	14.1	2	37.0	37.0	096	12.0	9	23.1	20.7	110	12.0	4	44.7	43.9	091	12.0	4	46.0	46.0					
	2030 hrs.*				14.1	2	37.0	37.0	096	14.1	7	37.0	34.6	100	14.1	2	58.0	57.9	086	12.0	1	28.0	28.0					
10.5	17	16.9	15.3	087		GAUHATI				16.2	4	44.0	40.5	107		MADRAS				14.1	1	67.0	67.0		VISAKHAPA			
12.0	12	17.9	15.7	079		0830 hrs.*				10.5	21	34.0	33.6	092		0830 hrs.*				18.0	1	61.0	61.0					
14.1	5	23.2	22.0	075	10.5	16	11.2	6.3	106	10.5	21	34.0	33.6	092		0830 hrs.*				18.0	1	61.0	61.0					
	BANGALORE				12.0	13	13.4	7.3	046	10.5	21	34.0	33.6	092		0830 hrs.*				18.0	1	61.0	61.0					
	0730 hrs.				12.0	13	13.4	7.3	046	12.0	16	57.4	57.2	086	10.5	20	14.2	3.4	097		VENGUR							
10.5	1	35.0	35.0	115	14.1	4	27.8	19.3	055	12.0	16	57.4	57.2	086	10.5	20	14.2	3.4	097	10.5	2	32.0	32.0					
	BAREILLY				16.2	2	23.5	15.5	053	14.1	15	79.1	77.2	088	12.0	19	15.3	2.4	098	10.5	2	32.0	32.0					
	0730 hrs.					1430 hrs.				16.2	11	73.8	72.7	087	14.1	15	17.0	8.0	055	12.0	1	37.0	37.0					
10.5	1	9.0	9.0	135	10.5	1	7.0	7.0	070	18.0	8	50.9	56.5	089	16.2	9	20.3	14.2	061	14.1	1	55.0	55.0					
	0730 hrs.					1430 hrs.				20.0	1	73.0	73.0	085	18.0	9	20.3	14.2	061	14.1	1	55.0	55.0					
	0730 hrs.					1430 hrs.				20.0	1	73.0	73.0	085	18.0	9	20.3	14.2	061	14.1	1	55.0	55.0					

RADIOSONDE DATA

August 1956

During the month, observations of upper air temperature, pressure and humidity were made at 12 stations in India as given in the list below. For a detailed description of the instruments used a reference may be made to the I. M. D. Scientific Notes Nos. 112 and 113 (Volume IX).

LIST OF RADIOSONDE STATIONS IN INDIA

No.	Name of station	Type of instrument used	Date of starting	Hours of routine observations in GMT during the month	Remarks
1.	Allahabad	Clock type	1st October 1944	03 and 15	
2.	Bombay	Clock type	7th September 1954	03 and 15	
3.	Calcutta	Clock type	13th December 1946	03 and 15	Fan type used from 13th December, 1946 to 30th November, 1947.
4.	Gauhati	Clock type	22nd July 1955	03 and 15	
5.	Jodhpur	Clock type	17th April 1946	03 and 15	
6.	Madras	Fan type	29th June 1946	03 and 15	
7.	Nagpur	Fan type	1st October 1946	03 and 15	
8.	New Delhi	Clock type	3rd December 1943	03 and 15	
9.	Port Blair	Fan type	4th December 1949	15	
0.	Trivandrum	Fan type	1st July 1947	15	
1.	Veraval	Fan type	3rd October 1944	15	
2.	Visakhapatnam	Fan type	8th December 1946	15	

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(A) From ascents at 03 hrs. G. M. T.

August 1956

Standard pressure surface mbs.	ALLAHABAD Surf. Pr. (989 mb.)						BOMBAY (1005 mb.)						CALCUTTA (1000 mb.)					
	No. of obs.	Ht. gpm.	Temperature °A				No. of obs.	Ht. gpm.	Temperature °A				No. of obs.	Ht. gpm.	Temperature °A			
			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point
Surface	31	98	301.5	304	298	298.5	31	9	299.4	300	298	298.4	31	6	301.7	304	300	299
1000	28	2	...	...	...	...	31	54	...	...	...	...	30	7	...	...	...	...
900	22	940	295.9	299	293	292.7	31	976	293.6	296	291	291.9	30	936	295.3	300	292	299
850	22	1433	292.8	297	290	290.2	31	1469	290.6	294	288	289.0	30	1428	292.6	296	289	299
800	22	1955	289.8	294	287	287.2	31	1987	288.1	291	284	286.3	30	1953	290.3	295	287	288
700	22	3082	284.4	289	279	280.7	29	3114	284.8	287	283	277.8	30	3086	285.1	289	281	288
600	22	4357	278.4	283	273	273.6	27	4395	278.7	284	273	271.6	29	4365	278.8	282	274	279
500	19	5827	270.3	276	265	268.0	27	5870	272.3	277	265	267.0	24	5835	270.4	274	265	269
400	18	7571	261.1	265	254	...	27	7621	263.0	268	253	...	24	7574	260.5	266	253	...
300	14	9738	248.9	254	243	...	22	9784	249.9	256	238	...	18	9719	247.6	256	238	...
250	9	11067	238.6	242	235	...	17	11082	241.0	248	227	...	14	11029	240.1	247	228	...
200	7	12615	227.4	230	226	...	15	12635	231.2	239	219	...	8	12556	227.5	237	211	...
175							14	13550	225.5	233	211	...						
150							12	14608	222.1	231	219	...						
125							11	15767	215.6	221	207	...						
100							8	17180	217.0	227	207	...						
80							5	18670	222.8	237	209	...						
	GAUHATI (998 mb.)						JODHPUR (977 mb.)						MADRAS (1005 mb.)					
Surface	31	49	301.7	304	298	300.1	31	218	300.0	302	299	295.6	31	15	301.3	303	298	299
1000	30	27	...	...	...	...	30	13	...	...	...	...	31	62	...	...	...	...
900	30	956	296.0	299	293	294.3	30	941	294.7	299	291	291.8	31	989	295.0	298	290	289
850	30	1453	293.5	297	290	291.6	30	1436	292.0	296	288	288.8	31	1484	292.2	295	287	289
800	30	1976	290.6	295	287	288.8	30	1974	290.3	295	286	285.6	31	2004	289.2	294	285	289
700	30	3107	284.8	289	281	283.1	30	3092	286.4	290	284	277.3	31	3130	282.9	287	278	279
600	28	4384	278.6	282	275	274.1	30	4361	279.2	283	274	270.1	31	4396	275.8	281	271	279
500	26	5855	271.2	275	267	269.1	28	5850	272.2	279	266	259.7	29	5854	268.6	277	263	...
400	24	7599	262.0	267	254	...	25	7609	263.7	269	257	...	26	7570	258.5	263	250	...
300	19	9758	249.2	259	243	...	21	9792	250.4	256	245	...	22	9705	244.5	251	237	...
250	19	11068	240.1	253	232	...	21	11086	241.5	247	235	...	20	10987	235.4	247	224	...
200	18	12597	228.5	240	218	...	16	12658	232.1	237	226	...	16	12481	222.7	237	212	...
175	8	13466	220.7	233	210	...	15	13553	225.4	231	217	...	16	13339	217.2	230	206	...
150	5	14467	215.6	227	207	...	11	14544	218.1	226	208	...	16	14321	211.5	224	201	...
125							9	15699	211.4	222	197	...	14	15406	206.5	220	192	...
100							7	17041	206.3	212	194	...	14	16762	204.9	215	192	...
80													11	18178	207.5	223	195	...

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(A) From ascents at 03 hrs. G. M. T.

August 1956

Standard pressure surface mbs.	NAGPUR Surf. Pr. (969 mb.)						NEW DELHI (977 mb.)									
	No. of obs.	Ht. gpm.	Temperature °A				No. of obs.	Ht. gpm.	Temperature °A							
			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point				
Surface	26	311	299.6	302	298	295.0	31	210	301.1	305	297	297.4				
1000	26	31	...	...	...	...	31	5	...	...	..	..
900	26	955	295.3	297	293	289.9	31	939	296.9	300	294	293.6				
850	26	1448	292.9	295	291	287.6	31	1438	293.3	296	290	290.7				
800	26	1968	290.0	293	288	285.1	29	1962	290.3	294	285	288.2				
700	26	3097	284.8	287	281	279.4	29	3093	284.8	288	277	281.4				
600	24	4376	278.7	284	276	273.1	28	4367	278.0	282	272	274.3				
500	23	5853	271.4	278	267	262.7	28	5835	270.6	276	264	269.4				
400	19	7603	262.3	269	255	...	25	7577	260.8	266	255	...				
300	16	9753	249.1	257	236	...	24	9726	248.7	257	238	...				
250	14	11097	239.3	248	229	...	20	11045	239.6	246	227	...				
200	13	12573	227.8	240	222	...	18	12573	228.5	236	213	...				
175	12	13441	221.8	237	217	...	16	13462	220.9	230	205	...				
150	12	14428	214.2	232	206	...	15	14438	215.6	224	198	...				
125	11	15614	209.8	224	202	...	12	15594	210.9	216	199	...				
100	9	16851	205.3	211	200	...	8	16962	205.6	214	193	...				
80	8	18331	206.0	212	202	...						...

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(B) From ascents at 15 hrs. G. M. T.

August 1956

Standard pressure surface mbs.	NAGPUR Surf. Pr. (968 mb.)						NEW DELHI (976 mb.)						PORT BLAIR (998 mb.)					
	No. of obs.	Ht. gpm.	Temperature °A				No. of obs.	Ht. gpm.	Temperature °A				No. of obs.	Ht. gpm.	Temperature °A			
			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point
Surface	22	311	300.7	303	298	294.4	31	210	301.6	305	299	298.4	30	81	298.7	300	297	297.2
1000	22	22	...	...	...	...	31	-12	...	...	...	...	29	61	...	...	...	...
900	22	950	296.5	299	292	289.9	31	924	298.2	302	295	294.7	29	985	294.1	297	291	291.6
850	22	1447	293.3	295	289	287.4	31	1426	295.0	298	291	292.2	29	1479	291.3	295	283	288.4
800	22	1969	289.6	291	287	284.9	31	1951	291.4	294	287	289.0	29	1997	288.5	293	285	285.1
700	22	3099	284.1	287	282	279.1	31	3084	284.6	288	278	281.2	29	3120	282.7	287	280	279.2
600	21	4373	277.9	284	274	272.1	30	4362	278.3	283	272	273.6	28	4386	275.8	282	273	273.1
500	19	5843	270.9	276	265	...	29	5831	270.7	276	262	266.2	27	5839	267.6	272	259	...
400	14	7581	260.7	265	256	...	29	7574	261.3	267	255	...	26	7561	257.7	264	253	...
300	12	9722	248.5	253	243	...	27	9717	247.4	255	237	...	18	9668	243.7	251	237	...
250	6	10955	237.7	241	233	...	20	11030	239.5	248	232	...	14	10933	234.1	241	225	...
200	6	12466	224.3	234	219	...	17	12578	229.8	238	219	...	14	12457	223.6	230	217	...
175	5	13322	217.0	222	215	...	17	13456	223.4	236	214	...	6	13255	218.8	228	209	...
150	5	14294	209.8	217	205	...	16	14443	215.9	232	207	...	6	14230	212.5	226	199	...
125							9	15623	210.1	229	199	...	5	15400	209.0	222	190	...
100																		
80																		
TRIVANDRUM (1002 mb.)							VERAVAL (1003 mb.)						VISAKHAPATNAM (996 mb.)					
Surface	30	64	298.2	299	297	295.4	26	8	299.3	300	298	297.3	26	48	301.5	303	300	296.4
1000	30	82	...	...	...	...	26	31	...	...	...	...	26	16	...	...	...	...
900	30	1000	292.0	296	289	288.6	26	954	293.9	297	291	291.0	26	945	296.6	299	293	290.5
850	30	1491	289.5	292	287	284.9	26	1448	291.3	295	289	288.0	26	1442	293.1	295	290	287.3
800	30	2005	287.0	291	283	281.3	26	1967	289.1	293	285	285.4	26	1961	290.6	293	286	284.8
700	30	3120	281.6	286	279	274.2	26	3097	285.1	291	279	276.7	26	3089	284.3	287	280	279.2
600	30	4380	275.0	279	271	267.3	26	4370	278.4	284	273	270.4	26	4360	277.4	280	274	271.6
500	30	5829	266.8	269	263	...	23	5842	271.7	277	267	...	26	5825	269.8	274	264	266.3
400	30	7540	256.1	261	251	...	22	7590	262.6	268	257	...	26	7555	259.7	265	253	...
300	28	9641	241.7	250	238	...	17	9754	250.5	258	244	...	24	9692	246.7	255	243	...
250	22	10895	231.3	243	225	...	13	11057	240.6	251	235	...	22	10994	238.3	249	227	...
200	21	12371	221.4	230	216	...	13	12595	229.3	240	218	...	15	12506	227.3	239	218	...
175	16	13189	214.2	222	209	...	10	13449	220.1	230	210	...	7	13397	222.7	235	211	...
150	15	14168	206.7	214	203	...	8	14446	213.9	224	207	...	7	14399	216.6	232	203	...
125	5	15252	203.0	207	199	...	5	15588	210.6	221	206	...						
100																		
80																		

NOTE:— Number of observations refer to those of dynamic height.

Means are not worked out for temperature and dew point for the 1000 mb. surface and for dew point for standard pressure surfaces with temperature less than 273 °A.

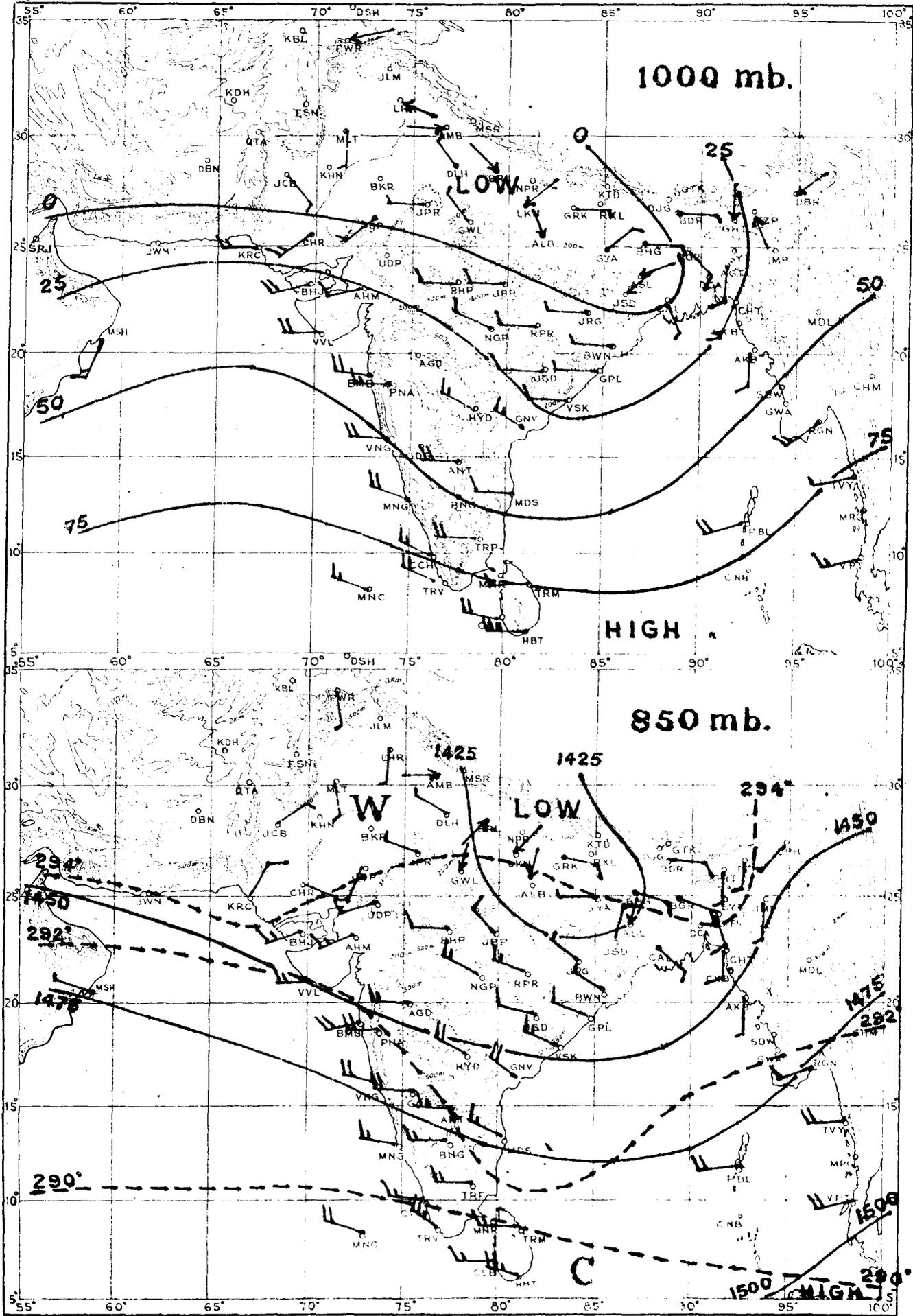
Means are not worked out for less than five observations at standard pressure surfaces.

MONTHLY MEAN CONSTANT PRESSURE CHARTS

I. Met. D.

AUGUST 1956

Plate I.



RESULTANT WIND — 5 Knots, — 10 Knots, — 50 Knots.

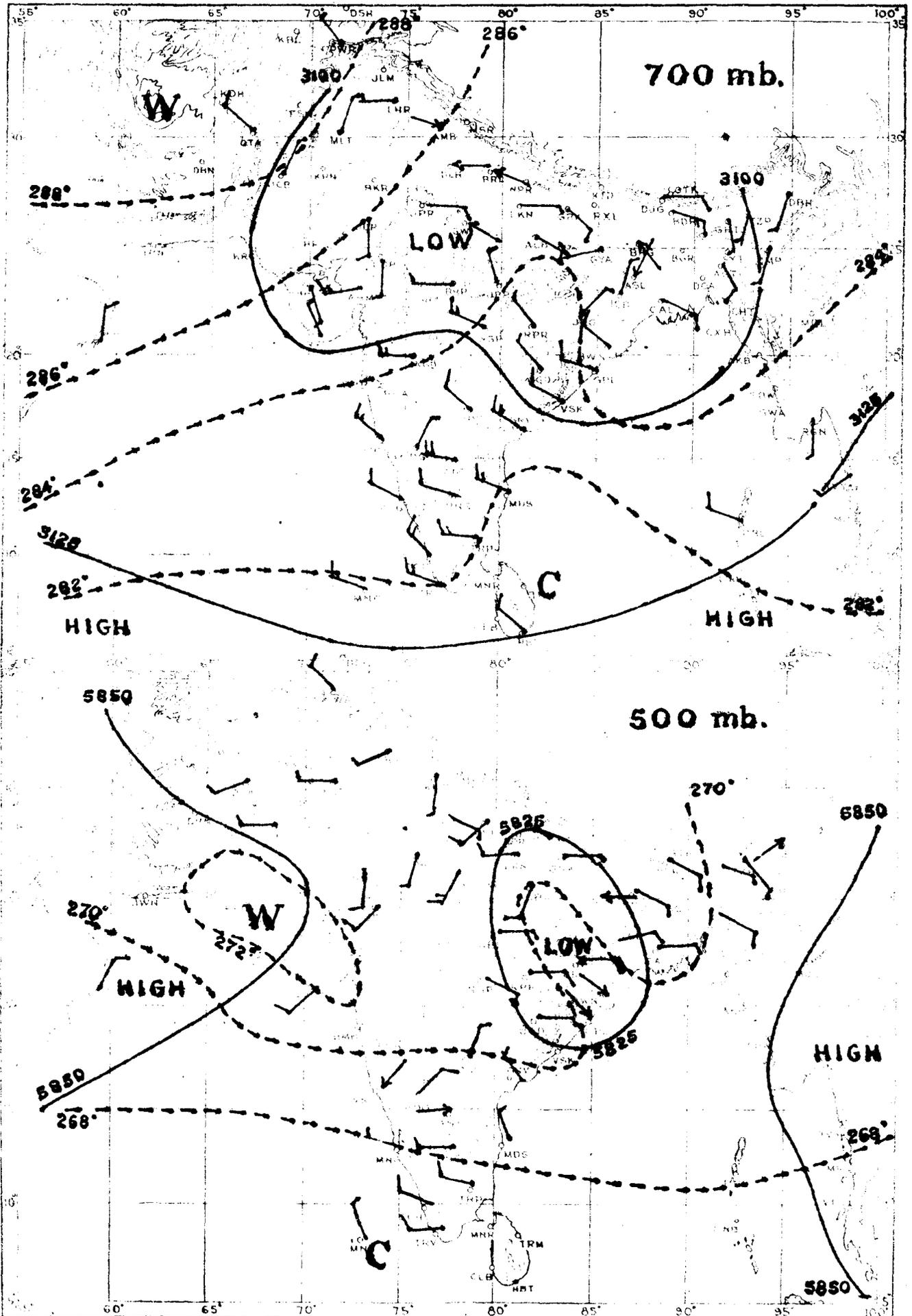
----- isotherms in degrees absolute. ————— Contours in geopotential metres.

MONTHLY MEAN CONSTANT PRESSURE CHARTS

AUGUST 1956

I. Met. D.

Plate II.



RESULTANT WIND — 5 Knots, — 10 Knots, — 50 Knots.

--- Isotherms in degrees absolute. — Contours in geopotential metres.

INDIA WEATHER REVIEW, 1956

Monthly Weather Report

September

Published by authority of the Government of India

Chief features—

(1) Break in the monsoon during the first week and its temporary recession from the northwestern part of the country in the second week and

(2) Very heavy rains leading to severe floods in Bihar and adjoining parts of Uttar Pradesh during second and third week and in Gangetic West Bengal in the last week.

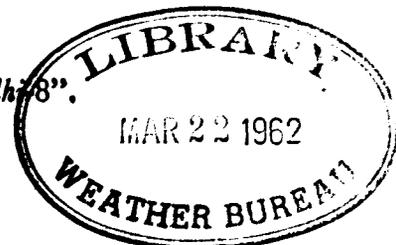
The low pressure wave which moved westwards across the Peninsula towards the end of last month gave rise to a trough of low pressure over the Gulf of Cambay and neighbourhood on 1st September. Shifting northwestwards, the trough became diffuse on the 2nd and filled up on the 3rd. In association with it, fairly widespread and locally heavy to very heavy rain occurred over the region extending from coastal Andhradesa to Saurashtra and Kutch and Gujarat on the first three days of the month; some noteworthy amounts were : Dahanu 7", Bombay (Colaba) 6" and Ratnagiri 4" on 1st September ; Porbandar 4" on 2nd ; Ahmedbad 4" on 3rd.

With the arrival of an easterly wave from central Burma, a feeble trough of low pressure formed over the north Bay of Bengal on the 3rd and persisted there for another day. Moving northwestwards, it lay as a shallow 'low' over south Bihar and adjoining east Uttar Pradesh on the morning of 5th and filled up on the 6th. Under its influence, the monsoon was active over Orissa and West Bengal from the 4th to the 6th. Saugor Island recorded 5" of rain on 5th.

Thereafter, a progressive incursion of drier continental air took place into the plains of north-west India and the monsoon temporarily receded from Rajasthan, the north Punjab (I) and Jammu and Kashmir by the 8th and later, also from the south Punjab(I), north Madhya Bharat and plains of west Uttar Pradesh by the 14th.

With the arrival of a low pressure wave from the east, conditions became unsettled in the northeast Bay of Bengal on the 8th and on the next day a depression formed with centre about 100 miles to the southeast of Calcutta. It moved northwestwards, was centred close to coast between Balasore and Contai on the 10th morning and passed inland during the course of the day. Continuing to move in a northwesterly direction, it lay over southwest Bihar and adjoining east Uttar Pradesh on the 12th morning. Thereafter, it remained practically stationary and weakening slowly it filled up only on the 16th. In association with this depression, fairly widespread and locally heavy to very heavy rain occurred in Orissa, West Bengal, Chota Nagpur and Bihar on the 10th and 11th and later in east Uttar Pradesh and adjoining Bihar till the 16th. Some noteworthy amounts of rainfall were : Dehri 5" and Gorakhpur 4" on the 9th ; Sabour 4" on the 10th ; Dehri 5" on the 11th ; Purnea and Darbhanga 5" each and Arrah and Banaras 4" each on the 12th ; Sayadpur (east Uttar Pradesh) 6" and Allahabad 5" on the 13th ; Banaras 6" on the 14th ; Kerakut (east Uttar Pradesh) and Purnea 8" each, Sayadpur 5" and Gorakhpur 4" on the 15th and Motihari 7" and Gorakhpur 4" on the 16th. This long spell of heavy to very heavy rains caused extensive floods, collapse of houses and interruption of railway traffic in east Uttar Pradesh and adjoining Bihar. According to press reports, over 15,000 houses collapsed and standing crops on two lakh acres of land were severely damaged, along with heavy loss of cattle in east Uttar Pradesh.

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An easterly wave moved across Burma into east central Bay of Bengal and adjoining Andaman Sea on the 16th and a trough of low pressure extending from the northeast to the west central Bay of Bengal appeared on the 18th. On the 21st, it lay over the region extending from the east central Bay to southeast Madhya Pradesh. The eastern end of the trough got accentuated on the 22nd under the influence of a fresh easterly wave moving across lower Burma. The trough, thereafter, shifted slowly westwards and lay over the region extending from northeast Madhya Pradesh to the north Konkan on the 26th. The next day, it was over the east central Arabian Sea off the Konkan coast. The trough over east central Arabian Sea extended into northeast Arabian Sea on the 28th and persisted there till the 2nd October. In association with this trough, both the Bay of Bengal and the Arabian Sea branches of the monsoon strengthened on the 22nd, September. Simultaneously, a deep easterly current swept across the central and adjoining northern parts of the country to Saurashtra and Kutch and Rajasthan, leading to a revival of monsoon activity in the Punjab(I) on the 26th, in east Rajasthan on the 29th and in west Rajasthan on the 30th. Locally heavy to very heavy rain occurred in the north Konkan from the 24th to 26th, Dahanu reporting 9" on the 24th and again the same amount on the 25th and Bombay(Santacruz) 4" on the 25th. Gangetic West Bengal experienced very heavy rains on the 26th, with 12" at Burdwan, 9" at Krishnagar, 8" at Dum Dum, 7" each at Asansol and Alipore and 6" at Berhampore. Asansol reported another 7" on the 27th. The newspapers reported severe floods in West Bengal which rendered homeless about ten lakhs of people. As a result of these floods, the roof of a coal field in the Raniganj area was reported to have caved in on the afternoon of the 26th, trapping 39 workers.

A fresh easterly wave moved across Tennasserim on the 29th and a trough extending from the east central Bay to east Hyderabad appeared on the 30th. It weakened in the course of the next two days, lay as a diffuse trough extending from the southwest Bay of Bengal to Mysore on 2nd October, becoming unimportant the next day. Under its influence, some heavy to very heavy falls of rain were reported from the east coast, Rayalaseema and Mysore between the 28th and the 30th; Kakinada recorded 11" on the 30th, Bellary 5" on the same day, Cuttack 4" on the 28th and Visakhapatnam an equal amount on 28th and again on the 30th.

The month of September closed with monsoon activity persisting almost throughout the country, whereas normally it should have withdrawn by the end of the month from northwest India, west Uttar Pradesh, Madhya Bharat, Saurashtra and Kutch, Gujarat, north Deccan(Desh) and the north Konkan.

The rainfall for the month was in large excess in Chota Nagpur, Bihar, east Uttar Pradesh, Saurashtra and Kutch and coastal Andhradesa, in moderate excess in West Bengal and Orissa and in slight excess in the Konkan, Rayalaseema and Tamilnad. It was in slight defect in Vindhya Pradesh, in moderate defect in the Bay Islands, west Uttar Pradesh, Rajasthan, Madhya Bharat, south Hyderabad and Malabar and south Kanara and in large defect in Assam, the Punjab(I) and Jammu and Kashmir. It was normal over the rest of the country.

The mean maximum temperature was above normal in Assam, west Uttar Pradesh, the Punjab(I) and Jammu and Kashmir, below normal in east Uttar Pradesh, south Hyderabad, Rayalaseema and Mysore and normal elsewhere.

The mean minimum temperature was normal throughout the country.

The mean relative humidity in the morning was in excess in Gujarat, Saurashtra and Kutch and north Hyderabad, in defect in Jammu and Kashmir and normal elsewhere.

The mean cloud amount in the morning was in excess in Chota Nagpur, east Uttar Pradesh, Madhya Pradesh, south Hyderabad, Tamilnad and Travancore-Cochin, in defect in Assam and Jammu and Kashmir and normal elsewhere.

Table I contains the divisional and sub-divisional means of rainfall, temperatures, humidity and cloud amount for the 13 chief political divisions and the 28 sub-divisions. The stations whose observations are used for preparing these means are given in the subsequent tables.

The highest maximum temperature given for any station in the accompanying tables is that recorded within the 24 hours ending at 0830 hrs. I. S. T. of the date noted in the succeeding column; similarly the heaviest fall in 24 hours, for any station denotes the amount recorded during the 24 hours ending at 0830 hrs. I. S. T. of the date given in the succeeding column.

Errata to M.W.R. September 1956

Page	Station	Height	Hour	Column	For	Read
<u>Table II</u>						
401	Division Uttar Pradesh	-	-	9	4	4.1
"	Division Rajasthan	-	-	5	+ 0.	+ 0.6
"	Sub-division Konkan	-	-	9	5.9	5.8
402	Jharsuguda	-	-	10	1.3	1.37
403	Gaya	-	-	24	1	0
404	Leh	-	-	3	3+ .6	+3.6
406	Galingapatam	-	-	25	1	0
407	Aijal	-	-	1	Aijal	Aijal (R)
"	Footnote	-	-	-	Blank	(R) = register not received
410	Name of the Station	-	-	1	Maffens	Haflong
414	Format	-	-	15	speed miles per hour	Wind speed miles per hour

Table III

414	Amritsar	-	1730	8	70.0	77.0
"	Srinagar	-	1130	4	1486.0	1488.0
416	Indore	-	2330	4	1005.8	1005.5
"	Name of the station	-	-	1	blank	Konkan
417	Seoni	-	0830	23	blank	3
419	Vengurla	-	1130	13	6.6	6.0
420	Belgaum (Sambre aerodrome)	-	1730	21	1	0
"	Bidar	-	0830	9	67.3	67.5
422	Shimoga	-	1730	22,23	blank	0, 3

Table IV

432	Gauhati	0.6	1430	D	057	087
435	Minicoy	6.0	1430	D	296	236
438	Santacruz	-	0830*	-	0730	0830*
"	Santacruz	3.0	2030*	D	780	280
"	Tiruchirapalli	0.9	1430	V	1.2	14.2
439	Vengurla heading (ht. in km.)	-	-	-	9.0	3.0

Table V

441	Jagdapur heading (ht. in km.)	-	-	-	12.5	12.0
442	New Delhi heading (ht. in km.)	-	-	-	14.0	14.1
"	Tiruchirapalli	10.5	1430	V	250	24.6
"	Trivandrum	16.2	2030*	D	070	078

1	Rainfall (inches).	Percentage of normal.	Mean temperature °F.		Relative humidity %		Cloud.		1	2	3	Mean temperature °F.		Relative humidity %		Cloud.	
			Maximum	Minimum	0830 hrs. I.S.T.	1730 hrs. I.S.T.	0830 hrs. I.S.T.	1730 hrs. I.S.T.				Maximum	Minimum	0830 hrs. I.S.T.	1730 hrs. I.S.T.	0830 hrs. I.S.T.	1730 hrs. I.S.T.
Division									Division—Contd.								
1. Assam (Including Manipur & Tripura).	4.42 -6.62	40	90.5 +2.4	76.3 +0.3	82 -3	78	4.5 -1.3	3.9	8. Madhya Bharat & Vindhya Pradesh.	5.70 -1.86	75	87.8 +0.1	72.1 -0.7	81 0	66	4.8 +0.5	5.5
2. West Bengal	15.20 +3.65	132	87.8 -1.5	77.7 -0.3	84 +2	81	5.3 +0.2	5.6	9. Madhya Pradesh	8.35 +0.38	105	86.3 -0.4	72.8 +0.1	83 +3	73	6.1 +1.4	6.7
3. Orissa	12.77 +3.83	143	88.0 -0.9	77.3 -0.3	85 +3	81	6.0 +0.9	6.5	10. Bombay (Including Saurashtra and Kutch).	9.47 +1.12	113	85.7 -1.1	72.8 -0.1	86 +4	71	5.5 +0.4	5.5
4. Bihar	14.36 +5.90	170	87.5 -1.0	76.3 -0.5	85 +4	82	5.7 +0.8	5.9	11. Hyderabad	6.61 -0.85	89	85.4 -1.7	71.2 -0.4	83 +4	66	5.8 +1.0	6.7
5. Uttar Pradesh	8.44 +1.47	121	91.0 -0.1	76.3 +0.8	78 0	68	3.7 +0.3	4	12. Madras (Including Travancore—Cochin).	6.66 +1.28	124	88.9 -1.5	75.8 -0.3	77 0	69	5.8 +0.9	6.4
6. Punjab (I) (Including PEPSU and Delhi).	0.72 -4.37	14	97.6 +3.0	76.5 +1.7	70 -1	49	1.4 -0.9	1.9	13. Mysore	4.92 -0.56	90	81.0 -2.1	67.0 -0.1	85 +4	64	6.1 +0.3	6.3
7. Rajasthan	1.66 -0.96	63	94.2 +1.0	75.0 +0	69 -1	48	2.2 -0.4	2.8	Mean of India	7.34 +0.33	105	88.7 -0.3	74.3 +0.1	80 +1	68	4.8 +0.4	5.2
Sub-division									Sub-division—Contd.								
1. Bay Islands	11.76 -5.64	68	83.7 +0.6	75.3 +1.5	83 -1	89	6.6 +0.4	6.8	15. Madhya Pradesh, East.	9.01 -0.02	100	85.4 -0.9	73.1 +0.2	84 +2	78	6.1 +1.3	7.0
2. Assam (Including Manipur & Tripura).	4.42 -6.62	40	90.5 +2.4	76.3 +0.3	82 -3	78	4.5 -1.3	3.9	16. Madhya Pradesh, West.	7.94 +0.63	109	86.8 -0.1	72.6 +0.1	83 +3	70	6.1 +1.5	6.5
3. West Bengal	15.20 +3.65	132	87.8 -1.5	77.7 -0.3	84 +2	81	5.3 +0.2	5.6	17. Gujarat	5.50 +0.11	102	89.2 -0.3	75.1 +0.4	86 +5	66	4.7 -0.1	4.7
4. Orissa	12.77 +3.83	143	88.0 -0.9	77.3 -0.3	85 +3	81	6.0 +0.9	6.5	18. Saurashtra and Kutch.	4.25 +1.71	167	89.3 -0.8	74.3 -0.6	87 +7	70	4.9 +0.7	4.7
5. Chota Nagpur	12.56 +4.48	155	85.9 -1.1	75.0 -0.3	85 +4	83	6.1 +1.1	6.6	19. Konkan	16.09 +1.87	113	83.2 -1.2	75.0 -0.2	89 +2	81	6.1 0	5.9
6. Bihar	15.26 +6.60	176	88.5 -1.0	77.3 -0.6	84 +4	81	5.4 +0.7	5.4	20. Deccan (Desh)	8.24 +0.49	106	83.9 -1.6	68.7 -0.1	84 +3	68	5.9 +0.8	6.5
7. Uttar Pradesh, East.	12.45 +4.91	165	89.1 -2.1	76.9 +0.4	83 +4	76	4.7 +1.0	4.9	21. Hyderabad, North	8.12 +0.07	101	84.6 -1.3	70.0 -0.7	85 +5	68	5.8 +0.9	6.6
8. Uttar Pradesh, West.	4.43 -1.97	69	92.9 +2.0	75.7 +1.2	73 -3	59	2.7 -0.4	3.2	22. Hyderabad, South	5.09 -1.78	74	85.9 -2.0	72.1 -0.2	81 +4	65	5.9 +1.1	6.7
9. Punjab (I) (Including PEPSU and Delhi).	0.72 -4.37	14	97.6 +3.0	76.5 +1.7	70 -1	49	1.4 -0.9	1.9	23. Coastal Andhra-desa.	9.89 +4.02	168	89.9 -1.6	77.6 -0.4	79 +1	71	6.1 +0.7	6.5
10. Jammu & Kashmir	0.58 -1.35	30	80.1 +2.9	55.3 +1.9	65 -6	36	1.8 -0.5	2.5	24. Rayalaseema	6.89 +0.80	113	88.9 -2.9	74.7 -0.6	75 +2	61	6.2 +0.8	6.7
11. Rajasthan, West	0.62 -0.48	56	97.6 +0.9	76.8 +1.3	67 -1	41	1.7 -0.3	2.1	25. Tamilnad	4.81 +0.86	122	90.7 -1.4	75.4 -0.3	72 -2	63	5.4 +1.1	6.4
12. Rajasthan, East (Including Ajmer)	2.69 -1.45	65	91.5 +1.1	73.6 0	71 -1	53	2.6 -0.5	3.4	26. Malabar and South Kanara	6.65 -2.55	72	83.1 -1.3	73.9 -0.5	89 +1	83	6.1 +0.5	5.9
13. Madhya Bharat	5.51 -2.22	71	87.8 +0.5	71.6 -0.3	80 -1	62	4.6 +0.4	5.2	27. Mysore	4.92 -0.56	90	81.0 -2.1	67.0 -0.1	85 +4	64	6.1 +0.3	6.3
14. Vindhya Pradesh	6.82 -1.26	83	87.8 -0.5	72.9 -1.3	83 +2	74	5.1 +0.6	6.0	28. Travancore-Cochin	5.88 -0.21	97	83.5 -0.8	75.1 +0.5	85 +2	79	6.5 +1.2	6.5

NOTE.—The entries in the second line for each division and sub-division indicate departures from normal.

TABLE II.—SUMMARY OF OBSERVATIONS OF TEMPERATURE, RAINFALL AND WEATHER—SEPTEMBER, 1956.

Table with 28 columns: Division and station, Air temperature in °F., Rainfall in inches., No. of rainy days (0.10" or more), Wind speed, miles per hour, and Weather phenomena—No. of days w. Columns 2-9: Air temperature; 10-14: Rainfall; 15-19: Wind speed; 20-28: Weather phenomena.

(R) Register not received. (b) Mean of 29 days. (c) Mean of 28 days. * - Means/Totals based on data of daily weather telegrams

Table with 29 columns: Division and station, Air temperature (Mean max/min, Departure from normal, Highest, Date, Mean min, Departure from normal, Lowest, Date), Rainfall (Total fall, Departure from normal, Heaviest fall, Date), No. of rainy days, Wind speed, and Weather phenomena. Rows include stations like Mysore-Centd., Bangalore, Travancore-Cochin, Hill Stations, and Hydrumetological Observatories.

TABLE II—SUMMARY OF OBSERVATIONS OF TEMPERATURE, RAINFALL AND WEATHER—SEPTEMBER, 1956

Division and station.	Air temperature in °F.								Rainfall in inches.					No. of rainy days (0.10" or more)		Wind speed, miles per hour.			Weather phenomena—No. of day								
	Mean maximum.	Departure from normal.	Highest.	Date.	Mean minimum.	Departure from normal.	Lowest.	Date.	Total fall during 0830-1730 hours.	Total fall in 24 hours.	Departure from normal.	Heaviest fall in 24 hours.	Date.	Total in the month.	Departure from normal.	Mean between 0830-1730 hours.	Mean 24 hours.	Departure from normal.	Precipitation (.01" or more).	Snow or sleet.	Hail.	Thunder heard.	Fog.	Dust storm.	Ground frost.	Gale.	
																											2
HYDROMETEOROLOGICAL OBSERVATORIES—Contd.																											
Damodar Catchment—Contd.																											
Ramgarh	87.2	..	94	3	74.2	..	71	26,29	4.50	10.73	..	1.98	19	17	..	2.5	1.7	..	21	0	0	13	2	0	0	0	0
Panchet Hills	87.8	..	94	3,4	77.4	..	72	26,27	3.05	14.64	..	7.68	26	13	..	5.6	5.2	..	15	0	0	13	0	0	0	0	
Asansol . . . . .	..	..	..	..	..	..	..	..	..	22.98	..	7.31	26	12	..	..	..	..	18	..	..	..	..	..	..	..
Dhanwar . . . . .	..	..	..	..	..	..	..	..	..	15.43	..	3.80	11	17	..	..	..	..	19	..	..	..	..	..	..	..
Dumri . . . . .	..	..	..	..	..	..	..	..	..	9.04	..	3.60	11	12	..	..	..	..	16	..	..	..	..	..	..	..
Bahungarh . . . . .	..	..	..	..	..	..	..	..	..	12.35	..	2.56	9	16	..	..	..	..	18	..	..	..	..	..	..	..
Falgunj (Giridih) . . . . .	..	..	..	..	..	..	..	..	..	15.47	..	3.06	9	15	..	..	..	..	18	..	..	..	..	..	..	..
Chandwa . . . . .	..	..	..	..	..	..	..	..	..	11.13	..	1.74	9	17	..	..	..	..	20	..	..	..	..	..	..	..
Mahanadi Catchment																											
Baramul	88.2	..	93	17	75.0	..	72	10,11,30	5.16	17.65	..	7.74	10	13	..	1.6	1.2	..	18	0	0	14	0	0	0	0	
Hirakud	88.3	..	93	3,18	76.9	..	75	7 days	2.60	8.25	..	1.58	24	10	..	3.0	3.3	..	19	0	0	2	0	0	0	0	
Sonepur	88.9	..	96	23	76.4	..	73	11,20	..	7.04	..	1.68	24	11	..	..	3.8	..	11	..	..	15	..	..	..
Ginabhar	88.2	..	94	19	72.6	..	70	10,18,28	..	10.34	..	2.80	10	13	..	..	..	..	16	..	..	..	..	..	..
Narbada Catchment																											
Punasa	89.2	..	97	21,22	72.5	..	68	11	1.29	2.95	..	1.01	24	5	..	5.4	4.1	..	11	0	0	8	0	0	0	0	
Bagra Tawa	87.3	..	94	20	72.9	..	70	10,11	4.70	10.67	..	3.04	6	11	..	4.8	3.3	..	14	0	0	3	0	1	0	0	
Thikri	90.0	..	97	21	73.5	..	69	11	..	5.96	..	1.68	24	7	..	..	..	..	10	0	0	3	0	0	0	0
Tapti Catchment																											
Nandurbar	88.2	..	94	21	73.8	..	70	11	..	6.37	..	2.86	28	8	..	..	..	..	12	..	..	..	..	..	..	..
Sabarmati Catchment																											
Jhadol	85.8	..	91	2,20	69.1	..	61	15	..	1.54	..	0.77	29	5	..	..	..	..	5	..	..	..	..	..	..	..
Dharoi	91.1	..	96	2,20,21	73.9	..	70	15	0.72	5.56	..	2.02	3	7	..	..	..	..	7	..	..	..	..	..	..	..

Table with 28 columns: 1-28. Columns include: Division and station, Hour of observation I.S.T., Height of barometer, Mean pressure in millibars, Mean temperature in °F., Cloud amount (Oktas), Wind speed (m.p.h.), and No. of observations (Wind direction). Rows list various stations like West Bengal, Orissa, and Chota Nagpur.

* Means/Frequencies based on data of daily weather telegrams.

(c) Mean of 28 days.

(d) Mean of 27 days.

(f) Mean of 25 days.

(g) Mean of 24 days.

TABLE III—SUMMARY OF OBSERVATIONS AT FIXED HOURS—SEPTEMBER, 1956

Division and station.	Hour of observation I.S.T.	Height of barometer cistern above mean sea level in feet.	Mean pressure in millibars.			Mean temperature in °F.			Vapour Pressure in mbs.	Relative humidity %.	Departure from normal.	Cloud amount (Oktas).		Wind speed (m.p.h.)			No. of observations.									
			At mean sea level or height in g.p.m. of nearest standard isobaric level.	At station level.	Departure from normal.	Dry bulb.	Wet bulb.	Dew point.				Mean amount.	Departure from normal.	miles per hour.	39 or more.	13 to 38.	1 to 12.	Wind direction.								
																		N	NE	E	SE	S	SW	W	NW	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
U. P., West—Contd. Dehra Dun—Contd.	1750 2330	2239 ..	1001.2 1004.2	927.7 929.4	.. ..	81.7 74.7	75.1 71.7	72.3 70.3	27.2 25.5	74 86	.. ..	3.5 3.3	.. ..	1.4 1.4	0 0	0 0	17 14	2 7	2 6	0 0	3 0	4 0	1 0	3 0	2 0	1 0
Punjab (I) New Delhi	0250 0530 0850 1150 1750 2350	710	1002.3 1003.0 1004.6 1004.3 1000.5 1003.2	978.4 978.8 980.5 980.5 976.8 979.1	.. .. -0.6	81.4 79.1 83.3 90.5 92.9 82.9	73.0 72.4 74.0 76.1 75.7 74.0	69.1 69.3 69.2 68.7 67.0 69.0	23.8 24.3 24.2 24.1 22.6 24.6	67 72 64 51 45 65	.. .. -10	1.7 2.2 1.9 2.0 2.5 1.3	.. .. -1.4	5.3 6.3 10.2 10.5 7.7 4.0	0 0 0 0 0 0	2 4 8 9 6 1	21 21 20 21 20 19	0 1 0 4 2 0	2 1 5 3 6 0	3 4 2 5 1 5	2 2 1 0 0 2	1 1 0 1 0 1	11 12 12 4 5 8	1 3 7 4 5 3	1 3 11 11 11 3	
Hissar	0530 0830 1150 1750 2350	725	1003.1 1004.3 1003.9 1000.6 1002.8	978.2 979.6 979.7 976.5 978.2	.. -0.8	75.8 81.8 93.1 94.0 80.2	71.2 74.0 77.3 77.5 73.1	68.1 70.1 69.9 69.3 69.3	24.3 25.3 24.6 24.7 24.4	79 68 48 47 69	.. +3	1.3 1.1 1.3 1.3 0.9	.. -0.5	1.8 3.4 4.8 3.7 1.1	0 0 0 0 0	0 0 0 0 0	18 27 26 27 20	0 0 0 3 0	0 2 1 3 0	0 2 2 2 1	5 2 4 2 3	1 2 2 1 4	9 9 5 7 4	3 9 10 7 1	0 1 2 5 1	
Karnal	0850 1750	818 ..	1004.2 1000.2	976.3 973.0	.. ..	81.3 91.5	74.4 77.1	70.9 69.4	25.5 24.6	71 51	.. ..	2.5 2.8	.. ..	1.7 0.5	0 0	0 0	15 7	0 0	1 0	2 0	1 0	0 1	0 1	8 2	2 3	1 2
Chandigarh	0850 1750	1138 ..	1004.1 1000.3	965.7 962.7	.. ..	82.2 89.6	75.0 75.9	71.7 68.2	26.5 25.0	74 52	.. ..	1.8 0.9	.. ..	0 2.1	0 0	0 15	0 4	0 2	0 0	3 2	7 1	1 0	0 1	0 1	0 4	0 4
Ambala	0850 1750	892 ..	1003.2 999.9	973.2 970.4	-1.7 ..	81.0 93.1	75.7 78.6	73.8 72.5	27.7 25.9	78 54	+4 ..	1.1 1.3	-1.4 ..	3.2 3.2	0 0	0 29	0 0	30 29	0 2	0 0	17 6	0 0	5 2	0 0	5 19	0 5
Ambala (P. B. O.)	0250 0530 1150 2350	906	1002.4 1002.4 1003.9 1002.6	971.4 971.7 973.6 971.9	.. .. .. ..	80.6 78.8 89.5 82.6	75.3 74.4 77.2 75.7	73.2 72.9 72.2 73.4	27.7 27.1 25.5 27.5	79 81 58 73	.. .. .. ..	1.3 2.6 2.4 1.3	.. .. .. ..	4.4 4.9 6.1 3.6	0 0 0 0	0 0 2 0	26 26 27 22	1 2 3 3	2 0 0 0	10 13 6 6	3 2 4 4	0 0 0 0	0 1 1 0	5 2 7 4	5 6 7 5	
Patiala	0830 1750	822 ..	1004.1 1000.5	976.2 973.1	.. ..	82.1 92.1	74.5 76.2	70.8 68.2	25.8 23.4	71 48	.. ..	1.9 2.2	.. ..	2.6 3.1	0 0	0 27	0 2	0 0	0 5	0 0	10 5	0 0	1 0	5 0	8 5	8 15
Ludhiana	0830 1750	810 ..	1004.5 1000.6	976.9 973.8	-0.7 ..	82.4 93.7	74.9 77.8	71.9 70.3	25.8 25.5	69 50	-3 ..	1.5 2.3	-0.3 ..	2.7 2.1	0 0	0 24	0 3	0 2	1 2	2 2	5 1	3 1	4 1	6 10	1 4	1 4
Ferozepur	0830 1750	657 ..	1003.6 1000.6	981.2 978.6	.. ..	83.2 95.0	74.3 76.8	69.1 66.0	24.6 23.5	64 42	.. ..	0.5 0.7	.. ..	0.3 0.5	0 0	0 8	0 0	5 8	0 1	0 0	0 1	0 4	0 0	4 0	0 2	0 2
Amritsar	0530 0830 1150 1750	769	1002.7 1004.0 1003.9 1000.3	976.4 977.9 978.2 974.9	.. .. .. ..	76.5 82.3 90.5 93.1	74.4 75.6 77.1 70.0	73.3 72.5 70.5 69.3	28.7 27.2 25.6 24.4	93 72 53 46	.. .. .. ..	1.1 1.2 1.2 1.1	.. .. .. ..	3.8 5.5 5.6 6.5	0 0 0 0	0 1 0 29	0 23 26 29	0 3 0 1	3 6 4 4	8 2 7 0	1 6 8 5	4 6 7 8	3 6 4 8	2 1 4 7	0 0 1 7	
Patna	0830 1750	1128 ..	1004.2 1002.3	966.5 964.8	.. ..	80.1 87.3	74.8 77.2	72.4 72.7	26.7 27.1	78 61	.. ..	3.2 3.1	.. ..	0.8 1.1	0 0	0 14	0 1	11 14	0 1	2 2	5 1	4 0	0 4	0 1	0 4	0 1
Mandi	0830 1750	2497 ..	1005.2 1000.7	921.9 918.9	.. ..	72.7 80.7	69.8 73.0	68.3 69.5	23.8 25.1	86 69	.. ..	3.8 4.5	.. ..	0.8 1.7	0 0	0 20	0 3	12 20	1 0	0 1	1 2	3 2	3 3	1 5	1 4	1 4
Jammu & Kashmir Srinagar	0830 1150 1750	5205	1472.8 1486.9 1431.2	838.9 838.5 835.3	-1.9	64.0 77.2 78.8	59.7 64.3 64.3	57.1 57.1 56.2	15.7 15.7 15.5	78 50 46	-7	2.0 1.7 2.6	-0.3	1.0 0.7 1.3	0 0 0	0 10 15	0 3 4	0 0 2	1 0 0	11 2 2	0 1 0	0 0 2	0 0 2	1 1 1	0 0 4	0 4 4
Gulmarg	0830	8709	3116.6	739.7	-1.4	56.0	52.1	49.1	11.8	78	-2	1.5	-0.7	0.3	0	0	5	0	3	0	2	0	0	0	0	0
Dera	0830	10059	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kargil (R)	0830	8790	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Leh †	0530 0830 1750	11529	3100.0 3106.7 3048.4	665.7 666.3 663.2	.. -1.2 ..	45.4 54.9 69.2	36.4 41.3 50.0	24.4 25.5 32.8	4.4 4.7 6.4	43 32 26	.. -18 ..	2.0 1.8 2.4	.. -1.1 ..	3.1 0.8 4.7	0 0 0	0 5 26	0 1 1	20 5 26	5 1 1	15 2 3	0 0 0	0 0 1	0 0 2	0 0 11	0 0 7	0 0 1
Skardu (R)	0830 1750	7305..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gilgit (R)	0830 1750	4890..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Misgar (R)	0830 1750	10190..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Jammu	0830	..	..	..	..	81.1	74.3	71.2	25.5	72	+4	2.0	+0.2	..	0	0	30	0	28	0	0	0	2	0	0	0
Rajasthan, West Sri Ganganagar	0530 0830 1150 1750 2350	580	1002.2 1003.7 1003.5 999.9 1002.6	982.5 984.0 981.8 980.6 982.7	.. .. .. .. ..	79.4 82.4 95.0 95.9 85.5	72.6 73.1 75.8 75.4 73.5	69.2 68.1 66.9 63.6 69.3	23.6 23.0 22.9 20.8 23.7	71 62 46 36 60	.. +2	1.0 1.0 1.3 0.8 0.2	.. +0.3	1.5 3.5 4.5 3.2 1.8	0 0 0 0 0	0 0 0 0 0	16 27 27 20 20	0 1 2 0 0	1 1 0 1 0	3 3 1 2 1	0 3 0 1 2	3 2 16 13 14	6 16 16 5 1	3 1 4 5 1	0 0 2 4 1	0 0 2 4 1

*Data not available.

(v) Mean of 16 days.

(R) Register not received.

†Observations for 25 days.

MONTHLY MEANS OF UPPER WINDS, SEPTEMBER 1956

During the month, observations of velocity and direction of upper winds were made at 52 stations in India. Out of these, at 42 stations all the observations were taken by means of pilot balloons and at 10 stations some observations were made by means of pilot balloons while the other observations by the radiowind method. Particulars of the stations, their co-ordinates and the approximate times of the regular pilot balloon and rawin ascents at each station are given in the table overleaf. All radiowind ascents have been indicated by means of an asterisk (*) against the scheduled hours.

Data from ascents made at the scheduled time or within two hours on either side of the scheduled times of regular observations have been used for averaging.

Data up to 9·0 km. a.m.s.l. are given under Table IV and data above 9·0 km. a.m.s.l. under Table V.

In Tables IV and V :

n—represents the number of observations,

V—represents the mean wind speed in knots irrespective of direction,

v—represents the resultant mean velocity in knots,

D—represents the direction of the resultant mean wind in degrees East of North.

Mean and resultant winds are given in this publication for the following heights :

Surface, 0·15 km. a.g., 0·3, 0·6, 0·9, 1·5, 2·1, 3·0, 4·5, 5·4, 6·0, 7·2, 9·0, 10·5, 12·0, 14·1, 16·2, 18·0, 20·0, 23·0, 26·0, 30·0 and 35·0 km. a.m.s.l. Of these the levels 1·5, 3·0, 5·4, 7·2, 9·0, 12·0, 14·1 and 16·2 km. a.m.s.l. are considered as the best approximations to the standard pressure levels 850, 700, 500, 400, 300, 200, 150 and 100 mb. respectively.

PARTICULARS OF PILOT BALLOON AND RAWIN STATIONS IN INDIA

Station	Lat. N	Long. E	Height of Anemometer head a.m.s.l. in metres	Date of opening	Approximate times of flight (IST)
Agartala	23°53'	91°15'	17	28th November, 1951	0130 0730 1430
Ahmedabad	23°04'	72°38'	61	19th May, 1928	0130 0730 1430
Amausi	26°45'	80°53'	126	20th November, 1950	0130 0730 1430
Ambala	30°23'	76°46'	282	1st April, 1941	0130 0730 1430
Anantapur	14°41'	77°37'	364	12th February, 1946	0730 1430
Asansol	23°41'	86°59'	126	29th May, 1942	0130 0730 1430
Baghdogra	26°38'	88°19'	138	7th June, 1953	0730 1430
Bairagarh	23°17'	77°21'	524	26th February, 1943	0130 0730 1430
Bamrauli	25°27'	81°44'	103	28th February, 1930	0130 0830* 1430
Bangalore	12°58'	77°35'	936	19th May, 1915	0130 0730 1430
Barcilly	28°22'	79°24'	180	12th January, 1943	0730 1430
Begumpet	17°27'	78°28'	542	1st September, 1929	0130 0730 1430
Bhagalpur	25°14'	86°57'	60	19th May, 1950	0730 1430
Bhubaneswar	20°15'	85°50'	45	5th December, 1942	0130 0730 1430
Bhuj	23°15'	69°48'	111	14th September, 1937	0130 0730 1430
Bikaner	28°00'	73°18'	228	8th October, 1943	0130 0730 1430
Chikalthana	19°51'	75°24'	583	7th October, 1951	0130 0730 1430
Cochin†	09°58'	76°14'	3	16th March, 1942	0130 0730 1430
Darjeeling	27°03'	88°16'	2115	21st May, 1956	0730 1430
Dum Dum	22°39'	88°27'	11	14th May, 1921	0130 0830* 1430
Gadag	15°25'	73°38'	650	3rd May, 1943	0130 0730 1430
Gauhati	26°05'	91°43'	55	12th March, 1955	0130 0830* 1430
Gaya	24°45'	84°57'	113	19th March, 1937	0130 0730 1430
Gopalpur	19°16'	84°53'	24	15th February, 1946	0130 0730 1430
Gorakhpur	26°45'	83°22'	83	5th January, 1943	0730 1430
Gwalior	26°14'	78°15'	211	7th May, 1938	0130 0730 1430
Imphal	24°51'	93°58'	798	8th March, 1952	0730 1430
Jabalpur	23°10'	79°57'	402	30th July, 1928	0130 0730 1430
Jagdalpur	19°05'	82°02'	561	25th March, 1948	0130 0730 1430
Jaipur	26°49'	75°48'	387	6th June, 1953	0730 1430
Jamshedpur	22°49'	86°11'	144	23rd July, 1942	0730 1430
Jharsuguda	21°55'	84°05'	234	1st May, 1944	0130 0730 1430
Jodhpur	26°18'	73°01'	228	15th October, 1934	0130 0830* 1430
Madras	13°00'	80°11'	29	8th April, 1926	0130 0830* 1430
Mangalore	12°52'	74°51'	40	4th June, 1928	0130 0730 1430
Masulipatnam	16°11'	81°08'	9	8th April, 1942	0130 0730 1430
Minicoy	08°18'	73°00'	14	14th April, 1941	0130 0730 1430
Mohanbari	27°29'	59°01'	110	1st June, 1948	0130 0730 1430
Mussoorie	30°27'	78°05'	2050	3rd November, 1955	0730 1430
Nagpur	21°09'	79°07'	316	23rd April, 1943	0130 0830* 1430
New Delhi	28°35'	77°12'	227	20th October, 1936	0130 0830* 1430
Poona	18°32'	73°51'	560	5th January, 1925	0130 0730 1430
Port Blair	11°40'	92°43'	92	29th October, 1945	0130 0730 1430
Raipur	21°14'	81°39'	308	15th July, 1944	0130 0730 1430
Santacruz	19°05'	72°53'	12	14th May, 1933	0130 0830* 1430
Tezpur	26°37'	92°47'	78	12th August, 1932	0130 0730 1430
Tiruchirapalli	10°46'	78°43'	95	22nd June, 1936	0130 0730 1430
Trivandrum	08°29'	76°57'	72	8th December, 1928	0130 0730 1430
Udaipur	24°35'	73°42'	587	24th June, 1947	0130 0730 1430
Vengurla	15°52'	73°38'	8	22nd November, 1941	0130 0730 1430
Veraval	20°54'	70°22'	16	13th October, 1941	0130 0730 1430
Visakhapatnam	17°43'	83°14'	9	24th September, 1928	0130 0730 1430

*Rawin ascents.
†Naval Meteorological Office.

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

September 1956

Station.	ANANTAPUR								ASANSOL								BAGHDOGRA											
	0730				1430				0130				0730				1430				0130							
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D				
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	6.3	5.6	259	30	8.9	7.2	282	30	3.3	1.6	125	30	3.1	1.7	104	30	3.9	2.7	120	30	3.8	2.5	041				
0.15 a. g.	30	11.6	10.9	257	30	12.8	10.9	278	24	9.8	4.7	172	26	7.1	2.4	101	28	9.2	6.0	118	25	8.2	6.1	055				
0.3 a.m.s.l.									24	10.1	4.9	175	26	7.5	2.5	102	28	9.7	4.7	119	25	8.3	5.9	067				
0.6 "	30	14.5	13.8	264	30	13.9	12.0	278	22	11.4	5.5	181	25	10.6	2.3	106	27	10.1	6.7	122	25	8.0	4.5	270				
0.9 "	30	18.1	17.3	280	30	15.5	14.3	282	21	9.7	3.7	205	22	10.2	1.4	172	25	8.4	4.9	124	24	8.5	4.5	093				
1.5 "	30	18.1	16.8	293	30	14.4	13.6	283	20	7.5	0.2	170	21	10.1	1.9	149	19	9.9	4.9	140	20	10.4	6.5	093				
2.1 "	28	14.4	12.1	294	26	15.2	14.3	287	17	6.8	2.5	181	19	10.8	3.8	138	16	9.7	3.9	111	18	11.3	6.9	096				
3.0 "	26	13.9	9.8	293	15	11.9	10.4	289	12	8.1	4.5	226	14	8.2	4.1	101	8	6.9	2.0	166	17	12.1	8.1	095				
4.5 "	19	9.5	6.8	291	7	9.9	8.0	259					7	9.9	6.9	094	6	7.5	4.4	061	6	9.7	5.2	104				
5.4 "	15	8.3	4.2	293	4	7.7	0.9	180					5	12.2	9.8	068	4	7.5	3.3	032								
6.0 "	13	9.1	2.6	307	2	8.0	6.7	333					4	13.0	11.9	057	4	6.7	3.0	018								
7.2 "	9	13.8	5.2	065	1	10.0	10.0	005					2	15.0	14.7	059	1	5.0	5.0	025								
9.0 "	5	16.4	15.8	092																								

Station.	BAGHDOGRA								BAIRAGARH								BAMRAULI											
	0730				1430				0130				0730				1430				0130							
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D				
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	3.3	3.1	044	30	4.5	2.5	105	30	5.0	2.2	297	30	6.5	3.3	294	30	7.3	3.2	319	30	3.0	0.5	004				
0.15 a. g.	26	8.5	7.7	050	29	6.8	1.4	150	30	16.6	6.5	304	29	15.0	8.2	297	29	11.4	6.0	336	27	11.1	2.5	244				
0.3 a.m.s.l.	26	8.5	7.6	066	29	6.8	3.4	117													27	11.5	2.8	046				
0.6 "	26	10.0	7.8	086	29	7.3	4.2	107	30	15.2	6.0	299	29	12.8	6.5	297	29	11.3	5.6	335	26	12.1	4.2	054				
0.9 "	25	11.3	7.4	093	28	9.1	5.7	100	29	17.8	5.5	323	24	17.0	7.5	315	29	11.3	5.4	335	23	12.2	4.6	067				
1.5 "	23	11.5	8.9	089	24	11.7	8.2	098	28	12.8	3.5	358	22	13.0	5.9	341	24	12.0	4.8	353	18	11.7	5.5	356				
2.1 "	23	14.1	12.4	097	21	11.6	8.2	102	25	9.8	3.2	041	19	9.8	4.5	043	16	9.1	2.7	028	7	13.7	10.2	327				
3.0 "	17	17.6	14.4	102	19	12.1	9.2	100					16	10.9	6.9	053	10	8.7	5.1	023	5	5.6	3.3	098				
4.5 "	9	9.9	7.1	105	12	8.5	0.7	107					11	7.5	5.4	059	5	10.2	6.2	266								
5.4 "	6	8.3	1.9	087	10	10.5	1.2	025					10	8.8	1.5	058	4	7.7	4.6	181								
6.0 "	4	5.7	3.2	234	9	11.2	4.5	040					9	9.7	1.4	039	3	6.7	5.3	180								
7.2 "	3	8.3	2.2	175	6	11.1	9.6	296					6	11.7	3.9	063	1	7.0	7.0	110								
9.0 "	2	13.5	5.2	177	4	14.5	8.3	306					2	11.5	9.3	068												

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

September 1956

Stn.	BAMRAULI												BANGALORE															
	0830*				1430				2030*				0130				0730				1430							
in I.S.T.																												
Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
ce . . .	30	4.9	1.2	010	30	5.9	3.0	030	30	2.7	1.1	052	30	7.5	6.7	268	30	7.6	7.0	273	30	9.5	8.2	287				
g. . . .	29	6.7	1.6	024	28	9.7	5.2	029	26	5.0	2.8	050	26	14.3	13.7	261	29	12.6	11.8	272	29	13.3	11.6	281				
s.l. . .	29	7.0	1.8	028	27	10.4	5.7	031	26	5.8	3.3	055																
.. . . .	27	10.4	3.3	043	26	11.0	6.4	030	26	9.6	5.7	044																
.. . . .	26	12.8	4.3	052	25	13.0	7.5	027	26	13.2	7.8	043																
.. . . .	25	14.4	6.6	052	20	15.3	8.2	027	26	16.5	8.8	035	22	20.5	19.2	278	19	20.5	19.0	291	29	14.1	12.9	278				
.. . . .	24	15.8	7.9	049	13	15.3	4.9	028	26	17.0	8.8	030	15	15.9	14.9	288	15	17.1	16.0	300	25	15.2	14.5	281				
.. . . .	22	17.1	8.7	060	9	12.6	2.3	039	26	15.8	9.3	037	11	10.5	8.7	297	10	11.7	10.9	302	10	11.3	10.7	293				
.. . . .	17	11.8	6.4	078	5	9.4	3.6	169	25	15.6	8.8	048	6	9.8	8.7	299	6	8.8	6.1	276	5	6.6	3.5	302				
.. . . .	15	12.1	8.7	087	2	3.5	3.2	065	22	14.6	7.3	047	3	6.7	3.1	244	5	6.8	1.3	145	2	6.0	3.1	279				
.. . . .	15	12.4	8.5	083	2	5.0	2.2	078	21	12.6	6.2	025	2	6.0	4.9	150	4	7.0	3.2	080	2	5.5	2.6	254				
.. . . .	11	11.8	5.8	083					21	13.8	8.8	024					1	16.0	16.0	075								
.. . . .	8	12.0	6.8	081					17	13.2	5.2	034																

Station.	BAREILLY												BEGUMPET												BHAGALPUR			
	0730				1430				0130				0730				1430				0730							
in I.S.T.																												
n Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
ce . . .	30	2.4	0.8	088	30	4.0	1.6	344	30	7.2	5.0	271	30	8.5	7.3	277	30	10.0	6.4	284	30	3.9	2.9	090				
g. . . .	28	6.6	0.4	025	29	7.1	2.9	333	26	11.7	8.5	273	28	14.2	12.3	278	30	13.0	9.3	292	26	8.7	5.2	108				
s.l. . .	28	6.3	0.7	041	29	6.7	3.0	329													26	9.3	5.7	113				
.. . . .	28	10.0	3.0	321	29	7.8	2.7	333	26	8.6	6.4	265	28	11.1	9.7	279	30	11.5	8.3	293	23	8.9	5.0	115				
.. . . .	27	10.3	3.5	329	29	8.5	3.6	315	26	14.5	9.3	285	28	17.7	14.0	296	30	13.0	9.7	296	21	8.6	5.4	113				
.. . . .	24	11.5	6.8	336	26	10.8	5.6	309	25	17.5	9.6	300	23	18.6	13.9	308	26	14.1	11.1	303	17	9.6	6.2	125				
.. . . .	20	11.3	5.9	337	24	10.7	6.8	306	22	16.1	11.2	310	21	18.5	12.3	307	24	13.0	8.4	297	15	10.5	7.8	130				
.. . . .	17	8.6	1.9	068	19	10.3	3.2	322	16	15.2	9.1	319	19	16.7	12.6	308	15	11.9	3.9	289	12	11.0	6.8	127				
.. . . .	13	7.3	4.2	154	17	7.9	1.3	315					10	8.4	3.3	331	2	11.5	0.7	189	7	7.7	3.4	096				
.. . . .	12	5.8	3.0	175	14	10.7	9.3	208					10	8.5	2.1	027	1	12.0	12.0	045	7	10.3	5.6	099				
.. . . .	12	7.2	4.2	148	11	11.4	4.3	292					10	9.2	2.5	071					6	11.8	9.0	109				
.. . . .	8	10.1	7.9	183	8	13.4	6.7	263					2	10.5	10.5	076					1	17.0	17.0	100				
.. . . .	3	11.7	8.2	239	1	4.0	4.0	235													1	18.0	18.0	080				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

September 1956

Station.	BHAGALPUR				BHUBANESHWAR								BHUJ											
	1430				0130				0730				1430				0130				0730			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	4.8	3.9	090	30	4.6	2.2	238	30	3.6	1.1	281	30	7.8	2.9	204	30	3.8	3.0	236	30	2.6	2.0	230
0.15 a.g.	26	10.4	4.1	087	25	9.3	3.4	243	26	8.1	2.4	330	27	8.4	3.0	182	30	13.2	10.5	242	30	10.5	7.8	250
0.3 a.m.s.l.	26	11.0	8.8	093	25	9.8	3.9	243	26	8.7	2.3	305	27	8.6	2.3	168	30	13.7	11.0	246	30	11.8	8.7	256
0.6 "	24	9.4	7.4	104	25	10.2	3.7	250	26	10.7	3.3	304	27	8.7	1.2	141	29	14.3	10.7	247	30	14.2	10.5	263
0.9 "	24	13.0	7.4	113	24	9.7	2.5	275	24	11.3	4.8	306	25	10.8	1.1	133	29	12.3	7.4	240	30	12.9	8.1	249
1.5 "	20	9.2	5.8	132	22	10.0	2.2	319	23	10.9	2.6	278	16	13.5	1.7	295	27	11.9	4.8	156	26	11.5	3.3	213
2.1 "	17	10.1	6.7	118	15	11.1	1.3	012	22	11.3	0.4	329	12	12.2	3.7	252	23	11.3	6.6	110	25	11.6	3.0	120
3.0 "	13	10.9	7.0	109	14	10.3	3.0	124	18	10.7	0.4	127	8	12.1	8.4	257	21	10.7	7.0	071	20	12.6	7.1	076
4.5 "	7	7.6	1.7	080	2	11.0	10.9	059	12	10.9	3.9	072	3	6.3	2.9	082	7	11.1	9.6	046	17	15.6	13.2	062
5.4 "	5	6.8	3.9	050					7	12.4	5.3	104	1	4.0	4.0	195	2	9.0	5.9	357	13	10.6	5.8	047
6.0 "	4	6.3	5.3	088					5	11.8	8.6	258	1	13.0	13.0	245	1	11.0	11.0	300	12	9.3	2.9	056
7.2 "	1	4.0	4.0	135					2	8.5	7.0	133									9	10.2	1.5	037
9.0 "									1	10.0	10.0	115									7	13.3	5.3	038

Station.	BHUJ				BIKANER								CHIKALTHANA											
	1430				0130				0730				1430				0130				0730			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	6.1	3.6	225	30	5.0	4.8	222	30	3.3	3.2	230	30	3.9	2.8	209	30	8.6	7.1	279	30	6.7	5.8	272
0.15 a.g.	30	11.6	7.2	240	30	18.6	12.9	216	30	13.1	8.1	235	30	8.1	3.2	215	26	15.3	12.8	285	28	13.0	11.0	263
0.3 a.m.s.l.	30	12.0	7.2	241	30	13.0	8.8	210	30	9.9	6.3	224	30	8.6	3.6	209								
0.6 "	30	11.6	7.1	247	30	19.1	13.2	222	30	17.3	11.7	243	30	9.1	3.3	219								
0.9 "	29	12.1	7.8	252	30	16.8	9.7	232	30	15.6	9.6	240	30	10.0	4.1	229	26	18.0	14.4	296	28	15.9	11.9	296
1.5 "	21	9.7	2.8	261	30	10.2	5.1	228	30	8.7	2.7	238	30	9.0	2.7	223	25	15.7	8.2	310	26	15.5	9.5	308
2.1 "	20	9.5	1.6	075	28	7.6	0.8	250	29	9.2	8.3	137	28	8.5	1.4	237	24	10.7	3.5	327	22	10.3	1.2	333
3.0 "	12	10.4	6.3	073	24	8.7	1.3	006	27	10.1	3.0	070	26	6.9	0.9	042	18	8.9	3.3	303	19	8.7	2.4	335
4.5 "	7	11.6	6.4	127	1	6.0	6.0	305	18	8.9	3.3	055	21	10.3	2.4	014	3	8.7	5.9	309	13	6.8	1.7	063
5.4 "	6	11.2	2.4	193					16	10.8	1.7	254	19	10.7	2.4	342	2	4.0	3.9	015	12	7.2	4.3	079
6.0 "	6	9.2	1.5	201					15	13.6	1.0	244	19	11.6	3.6	287	1	7.0	7.0	040	11	8.5	7.8	075
7.2 "	5	11.4	1.8	304					6	12.8	2.9	350	13	12.3	5.7	293	1	4.0	4.0	040	9	11.2	10.2	074
9.0 "	1	9.0	9.0	135					2	10.5	9.0	324	5	14.8	14.3	318					5	15.8	15.5	093

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

September 1956

Station.	CHIKALTHANA				COCHIN								DARJEELING											
	1430				0130				0730				1430				0730				1430			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	7.9	4.4	281	30	2.5	1.4	312	30	1.7	0.5	341	30	7.3	6.4	280	30	1.2	0.9	078	30	0.9	0.7	122
5 a. g.	29	12.1	6.8	291	20	4.1	3.1	315	26	3.7	1.6	014	29	7.7	7.2	285	18	3.3	2.4	094	7	5.7	3.5	099
a. m. s. l.					20	5.9	5.3	305	26	5.9	4.6	312	29	9.0	8.5	288								
"					20	8.7	8.5	305	26	9.5	8.4	310	29	11.6	11.3	297								
"	29	12.2	7.0	300	18	10.3	10.1	304	26	11.0	10.0	304	29	12.9	12.5	300								
"	26	13.1	8.1	300	14	13.1	12.8	301	23	12.5	11.6	296	28	13.9	13.5	300								
"	17	11.4	3.7	317	9	12.8	12.5	297	19	13.5	12.8	293	26	14.4	13.8	301								
"	4	10.3	5.7	308	5	12.4	12.0	302	12	13.3	13.1	290	16	13.9	13.3	293	18	7.3	5.7	257	6	12.8	9.6	113
"	1	13.0	13.0	015	1	3.0	3.0	280	7	9.9	9.2	294	9	11.8	11.5	290	16	11.4	8.8	099	5	16.4	2.2	165
"					1	3.0	3.0	255	3	3.0	1.3	203	5	7.4	7.0	311	12	12.5	9.5	083	4	17.7	7.0	109
"					1	1.0	1.0	235	3	3.3	0.5	135	2	4.5	4.5	328	13	9.5	6.4	072	4	14.5	2.9	140
"									1	4.0	4.0	240	1	6.0	6.0	325	11	7.1	3.7	081	2	12.0	10.0	263
"													10	9.5	3.4	112								

Station.	DUM DUM								GADAG																			
	0130				0830*				1430				2030*				0130				1730							
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	3.3	2.0	138	30	5.0	3.1	135	30	5.6	3.3	139	30	4.3	3.1	139	30	9.6	8.8	261	30	6.9	6.2	254				
5 a. g.	28	9.8	5.2	170	29	10.6	6.3	140	26	8.5	4.9	169	30	11.5	8.3	163	30	18.2	17.2	261	30	15.7	14.8	257				
a. m. s. l.	27	11.3	6.6	180	29	10.1	6.0	146	26	9.7	6.1	168	30	11.7	8.6	162												
"	25	11.2	6.5	189	30	10.4	5.9	148	25	9.2	5.7	165	30	12.5	9.4	163												
"	22	10.4	5.7	196	29	10.5	5.7	144	23	8.7	4.3	172	30	11.9	9.3	162	30	20.8	19.4	270	30	18.9	17.4	279				
"	20	8.3	4.8	184	29	12.4	6.7	145	23	9.9	4.3	145	30	11.6	8.1	162	22	21.1	20.2	282	25	19.4	16.6	293				
"	16	6.7	3.7	153	30	13.9	8.4	143	17	8.0	5.1	133	30	11.4	7.3	159	15	14.7	12.2	287	19	14.4	9.4	063				
"	13	7.8	5.3	153	30	14.9	8.0	135	13	7.7	2.8	146	30	11.2	6.9	159	10	11.5	7.9	287	12	12.4	7.7	285				
"					29	12.6	5.6	150	8	11.9	4.8	094	30	11.8	5.9	154	2	5.0	4.4	342	5	6.8	4.3	008				
"					29	11.3	4.7	139	6	13.1	8.6	092	29	14.1	6.4	143	1	8.0	8.0	340	2	7.5	7.5	044				
"					28	11.9	6.6	133	5	11.6	8.6	092	28	13.8	7.5	130					1	10.0	10.0	075				
"					28	13.3	8.7	114	3	14.0	8.9	066	27	14.3	7.9	123					1	8.0	8.0	045				
"					25	18.9	11.0	117	3	24.6	14.9	102	26	16.2	10.4	107												

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

September 1956

Station.	GADAG				GAUHATI										GAYA									
	1430				0130				0830*				1430				2030*				0130			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	30	9.2	7.6	256	30	1.9	0.5	162	30	3.1	1.9	056	30	4.4	1.1	014	30	2.3	1.1	250	30	3.2	1.5	137
0.15 a. g. . .	30	15.9	14.4	268	27	4.7	1.2	237	29	5.3	3.2	061	29	6.2	1.3	021	30	3.7	1.3	249	26	10.2	4.5	163
0.3 a. m. s. l. . .					27	4.9	0.7	308	29	5.9	3.5	068	29	6.1	1.0	042	30	4.2	1.6	247	26	10.8	4.7	164
0.6 " . . .					27	5.9	1.5	328	29	7.8	5.0	077	29	7.0	0.5	057	30	5.6	1.4	237	25	11.1	5.7	171
0.9 " . . .	30	17.2	16.1	272	26	7.6	0.6	127	29	9.3	5.6	091	28	8.3	1.3	165	30	6.5	0.4	191	22	10.2	4.4	159
1.5 " . . .	25	16.7	15.5	295	24	9.9	2.3	141	28	10.8	4.7	105	27	10.5	4.4	190	30	9.4	2.0	179	19	8.8	2.4	173
2.1 " . . .	12	17.8	15.2	290	22	11.2	3.0	125	29	12.6	5.0	118	25	11.4	4.6	172	30	10.8	3.4	166	15	7.0	1.7	137
3.0 " . . .	6	10.3	6.2	354	15	12.1	3.4	089	29	14.8	6.1	129	21	14.0	4.2	125	30	12.8	5.1	147	11	8.1	6.2	100
4.5 " . . .	2	12.0	7.2	048	2	6.0	5.4	095	27	14.1	7.6	106	17	12.1	4.7	111	30	13.7	6.9	110				
5.4 " . . .					1	6.0	6.0	100	26	12.9	7.0	097	14	12.6	5.7	083	30	13.5	6.5	115				
6.0 " . . .					1	12.0	12.0	080	26	12.2	5.6	091	12	12.6	7.7	068	29	13.1	5.3	108				
7.2 " . . .					1	17.0	17.0	100	25	10.4	3.6	094	8	12.7	1.8	072	29	10.9	1.2	100				
9.0 " . . .									22	16.6	2.8	211	4	17.0	13.6	102	25	12.7	1.8	239				

Station.	GAYA				GOPALPUR										GORAKHPUR									
	0730				1430				0130				0730				1430				0730			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	30	4.4	2.1	113	30	5.1	1.2	088	30	4.2	1.8	264	30	3.8	2.1	299	30	7.0	3.8	175	30	2.9	2.2	055
0.15 a. g. . .	27	9.7	4.4	129	28	9.1	1.8	068	27	9.5	5.2	244	27	8.9	4.4	308	27	9.3	4.5	170	23	9.2	7.4	085
0.3 a. m. s. l. . .	27	10.3	4.5	131	28	9.5	1.9	070	27	9.5	5.8	243	27	8.9	3.8	305	27	8.9	3.5	160	23	10.4	8.7	090
0.6 " . . .	26	12.1	4.1	149	28	11.3	3.1	9.3	26	9.3	5.0	263	27	9.0	3.3	307	27	7.9	1.9	129	21	13.0	11.4	105
0.9 " . . .	22	12.6	4.2	171	24	10.0	2.6	106	24	9.5	5.1	285	27	9.6	3.8	320	26	7.7	0.9	357	21	13.8	12.3	105
1.5 " . . .	17	9.8	2.9	146	19	11.0	4.8	125	24	9.5	4.3	299	24	11.2	5.5	304	25	10.0	3.8	307	18	13.7	11.5	090
2.1 " . . .	16	10.1	5.4	087	15	9.6	3.9	137	19	9.2	6.2	314	23	10.6	4.4	286	23	10.6	4.3	296	16	12.4	8.9	080
3.0 " . . .	11	9.9	7.6	112	9	8.0	0.7	124	11	7.1	3.8	318	20	9.3	2.0	260	21	9.8	2.4	242	12	14.0	10.8	091
4.5 " . . .	7	6.4	5.3	081	3	7.0	6.6	056	3	6.7	6.3	073	13	7.9	1.7	289	20	9.4	3.4	215	8	6.6	4.1	088
5.4 " . . .	5	9.0	7.0	085	3	9.0	6.9	075	2	11.0	10.9	087	9	11.2	5.4	122	15	8.2	2.6	210	7	5.7	4.4	119
6.0 " . . .	4	9.5	6.1	087	2	10.0	10.0	127	1	20.0	20.0	090	9	12.3	7.6	118	14	8.7	1.5	166	6	8.5	6.5	136
7.2 " . . .	1	16.0	16.0	130	2	13.5	13.5	121					6	15.3	12.4	109	11	9.1	4.4	071	1	7.0	7.0	180
9.0 " . . .	1	21.0	21.0	130									1	24.0	24.0	100	6	10.7	8.8	088	1	8.0	8.0	110

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

September 1956

Station.	GORAKHPUR				GWALIOR								IMPHAL											
	1430				0130				0730				1430				0730				1430			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface .	30	3.9	2.1	052	30	3.9	2.2	253	30	4.4	2.3	276	30	5.5	1.9	335	30	1.2	0.7	120	30	3.8	1.8	186
15 a.g.	24	9.0	5.6	076	30	15.1	6.1	260	30	14.4	6.4	286	30	10.5	3.8	341	29	2.4	1.3	097	28	5.5	2.1	195
3 a.m.s.l.					30	12.3	6.1	255	30	10.5	5.6	283	30	9.8	3.8	336								
5 "	24	9.3	6.1	077	29	16.5	3.9	284	30	17.0	6.1	333	30	11.0	4.4	330								
9 "	23	11.1	8.1	082	29	14.7	3.1	004	29	15.1	6.2	357	30	12.1	5.6	341	29	2.3	1.1	099	28	5.2	2.3	207
5 "	23	12.3	9.5	086	27	13.6	7.1	026	29	14.1	8.0	016	29	13.3	7.2	357	28	7.5	3.8	104	28	6.9	2.4	165
1 "	21	12.3	10.2	095	24	13.1	7.7	023	27	14.6	9.7	022	24	15.3	8.7	021	20	11.7	5.3	115	24	9.6	2.9	145
0 "	19	13.4	10.8	101	19	11.0	6.0	004	27	14.1	8.8	028	20	16.3	11.3	012	12	13.3	7.4	116	17	14.4	6.9	108
5 "	15	13.3	10.2	101					16	11.1	5.5	074	12	8.4	4.4	345	4	13.7	13.7	090	8	9.6	2.0	128
4 "	8	6.9	2.7	127					14	11.3	5.1	104	10	7.8	2.7	292	3	11.3	11.1	068	4	5.7	2.8	078
0 "	5	9.8	5.5	144					13	11.7	4.1	111	9	9.5	3.6	269	2	11.5	11.5	090	4	6.7	5.9	084
2 "	2	9.5	8.1	148									6	12.5	7.3	282	2	9.0	9.0	100	3	11.0	5.9	071
0 "	1	13.0	13.0	190					12	10.7	4.4	160	6	12.5	7.3	282	2	9.0	9.0	100	3	11.0	5.9	071
0 "	1	13.0	13.0	125					11	13.4	7.9	239	5	13.6	9.0	254	2	24.0	24.0	085	1	8.0	8.0	025

Station.	JABALPUR								JAGDALPUR															
	0130				0730				1430				0130				0730				1430			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface .	30	3.0	0.8	288	30	3.9	2.0	279	30	4.7	2.3	303	30	1.8	1.3	234	30	2.4	1.4	237	30	3.6	1.8	249
15 a.g.	29	11.8	3.4	271	28	11.3	4.1	282	30	11.6	5.3	308	27	7.9	3.9	237	27	6.6	3.3	248	27	9.9	4.9	260
3 a.m.s.l.																								
6 "	29	13.1	3.5	281	28	13.0	4.3	289	30	11.7	5.3	312	27	4.7	2.4	225	27	4.3	2.2	240	27	6.9	3.6	261
9 "	26	14.7	3.1	323	23	17.5	6.6	316	28	12.5	5.7	337	27	9.4	5.0	259	25	10.8	4.7	278	27	10.6	4.6	273
5 "	24	12.9	4.6	013	20	19.3	8.7	335	21	14.9	8.3	006	20	10.5	3.3	296	17	9.4	4.1	302	23	12.7	4.5	306
1 "	22	13.3	6.3	006	18	14.8	7.2	011	17	13.4	7.8	025	17	9.8	1.5	322	16	9.9	3.7	337	16	12.9	3.3	335
0 "	16	10.5	6.3	048	15	12.7	6.9	024	13	11.9	3.7	040	13	8.4	1.6	352	14	9.6	2.4	318	10	12.4	2.8	055
5 "	5	8.6	4.6	132	11	10.1	1.3	047	10	10.5	2.2	122	5	6.8	4.2	084	8	7.1	2.5	063	5	10.4	4.9	297
4 "					9	10.3	3.1	113	9	10.0	5.7	124	2	10.5	10.3	104	7	8.1	6.9	109	3	9.7	4.9	015
0 "					7	13.6	2.7	082	8	9.6	5.8	131	2	12.5	12.5	105	6	8.3	7.0	117	2	8.0	6.4	064
2 "					5	10.6	6.9	100	3	7.0	3.0	187	2	13.0	13.0	092	5	11.0	9.4	130				
0 "					2	3.0	1.3	234	2	9.0	8.1	120					5	14.4	13.4	112				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

September 1956

Station.	JAIPUR								JAMSHEDPUR								JHARSUGUDA							
	0730				1430				0730				1430				0130				0730			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	30	4.9	2.9	332	30	6.4	0.7	299	30	2.5	0.4	142	30	4.3	1.1	111	30	3.9	1.2	189	30	4.2	1.2	19
0.15 a. g. . .	30	12.9	7.0	306	30	9.4	2.4	308	27	6.2	1.4	150	27	6.9	1.4	136	25	9.6	2.2	186	27	8.9	1.4	20
0.3 a. m. s. l. . .									27	6.4	1.1	161	27	7.1	1.4	132	25	7.7	1.8	174	27	7.6	1.5	20
0.6 „ . . .	30	16.5	9.2	303	30	9.0	2.7	309	27	9.7	0.7	220	27	7.2	1.5	110	25	11.8	3.0	226	27	11.7	2.4	26
0.9 „ . . .	30	18.2	8.5	305	30	10.4	2.9	341	23	10.3	2.4	272	24	7.8	0.4	124	23	11.6	2.6	202	25	13.4	2.7	30
1.5 „ . . .	29	11.7	3.3	017	29	9.6	2.9	002	19	10.5	1.0	154	16	9.5	2.1	244	20	12.5	0.9	352	18	14.2	3.6	05
2.1 „ . . .	28	9.7	5.8	056	25	8.0	2.6	331	17	10.2	2.0	138	11	8.7	3.5	267	17	12.4	1.8	095	14	13.1	4.8	04
3.0 „ . . .	24	10.7	6.5	029	18	8.9	6.7	012	14	7.8	2.7	151	4	6.7	4.2	295	10	9.5	3.1	097	13	11.0	4.8	06
4.5 „ . . .	18	10.3	4.1	058	9	13.0	7.4	010	9	9.3	6.2	100	3	7.3	3.1	342	2	8.0	3.9	127	7	9.3	6.6	10
5.4 „ . . .	14	11.7	3.4	093	9	14.7	8.9	339	6	9.8	8.6	087	2	9.5	7.0	314					5	11.4	10.4	09
6.0 „ . . .	8	12.6	2.7	020	8	13.6	10.9	325	6	11.8	10.8	087	2	8.5	4.3	273					3	9.3	8.9	10
7.2 „ . . .	3	15.0	8.6	146	3	14.7	12.3	350	3	15.0	13.5	077									2	8.5	5.9	15
9.0 „ . . .					1	12.0	12.0	355																

Station.	JHARSUGUDA				JODHPUR								MADRAS											
	1430				0130				0830*				1430				2030*				0130			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	30	6.0	2.9	237	30	5.1	2.7	228	30	6.3	3.8	230	30	7.2	3.0	205	28	5.6	2.5	225	30	6.9	6.1	2
0.15 a. g. . .	30	8.6	3.5	239	30	15.3	9.2	220	30	9.0	4.7	230	30	9.5	5.1	206	28	8.5	3.7	219	29	14.9	12.9	2
0.3 a. m. s. l. . .	30	8.4	4.2	237	30	12.0	7.5	222	30	8.0	4.4	230	30	9.2	4.5	196	28	7.5	3.1	220	29	15.7	13.5	2
0.6 „ . . .	30	8.7	2.2	249	30	18.6	10.3	211	30	11.6	5.8	225	30	10.1	5.7	210	28	10.5	4.4	214	29	14.7	11.8	2
0.9 „ . . .	30	9.5	2.1	281	30	15.3	8.9	209	30	14.9	7.4	220	30	10.5	5.1	154	28	13.5	5.4	208	29	13.3	10.0	2
1.5 „ . . .	26	11.1	1.2	007	30	10.9	4.1	189	30	12.2	6.1	160	27	9.7	4.0	180	28	12.9	4.6	179	28	11.9	9.6	2
2.1 „ . . .	18	11.6	3.9	087	27	10.5	7.1	114	30	11.5	8.1	102	22	9.3	4.3	127	28	11.3	5.4	113	24	12.0	9.9	2
3.0 „ . . .	10	10.3	2.5	055	22	11.1	9.1	087	30	13.1	9.5	094	17	9.6	4.9	107	26	12.7	9.6	083	18	10.6	8.8	2
4.5 „ . . .	4	7.5	3.0	061	3	8.6	2.0	270	29	10.7	7.2	085	11	14.0	6.1	075	25	12.0	4.4	052	2	2.5	1.5	2
5.4 „ . . .									29	12.4	5.7	105	9	13.4	2.8	067	22	10.5	0.4	093				
6.0 „ . . .									29	13.1	4.5	120	7	9.9	0.4	315	21	11.1	1.3	206				
7.2 „ . . .									28	1.7		111	5	11.8	6.5	066	18	15.0	4.9	294				
9.0 „ . . .													1	2.0	2.0	360	14	15.1	5.4	331				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

September 1956

Station.	MADRAS												MANGALORE											
	0830*				1430				2030*				0130				0730				1430			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	30	8.8	8.1	274	30	6.1	2.2	264	30	6.5	3.7	173	30	4.0	0.8	063	30	4.2	1.0	100	30	7.3	5.9	260
0.15 a. g. . .	30	11.7	10.9	275	30	10.1	4.3	266	27	8.4	5.7	176	28	8.0	3.4	290	30	7.2	0.5	228	30	10.7	9.0	273
0.3 a. m. s. l. . .	30	13.3	12.6	280	30	9.4	5.2	267	27	9.4	6.1	190	28	8.9	6.6	294	30	9.4	6.5	292	30	11.4	10.2	286
0.6 „ . . .	30	16.6	15.9	285	30	10.0	8.1	274	27	9.6	6.1	216	26	11.8	10.6	298	30	12.3	10.4	296	29	13.4	12.2	294
0.9 „ . . .	30	18.6	17.7	291	30	11.3	10.0	280	27	9.3	6.4	250	22	14.1	13.6	304	29	14.3	13.2	298	26	14.9	13.9	298
1.5 „ . . .	30	16.1	15.4	290	29	13.5	12.9	288	27	11.4	9.6	282	17	15.4	14.7	301	25	16.2	15.5	295	22	14.3	13.0	300
2.1 „ . . .	30	13.7	12.3	282	27	14.5	13.2	284	27	14.2	12.8	288	15	15.8	15.1	294	20	15.7	14.2	295	16	14.1	12.6	293
3.0 „ . . .	30	13.3	11.9	274	25	14.1	12.7	281	27	16.2	15.0	286	9	12.1	11.7	304	16	13.0	11.9	290	12	15.2	14.6	287
4.5 „ . . .	30	11.2	8.0	265	19	10.1	7.4	268	24	12.6	9.3	282	2	7.5	7.0	305	12	9.5	8.1	291	10	9.9	9.2	289
5.4 „ . . .	29	10.8	5.0	255	16	8.4	5.3	250	24	9.8	4.4	277	1	6.0	6.0	320	9	9.0	5.8	325	9	5.6	3.4	327
6.0 „ . . .	27	10.6	2.9	234	14	8.0	1.4	199	22	9.5	1.6	272	1	6.0	6.0	315	7	5.9	2.9	009	8	7.0	1.8	051
7.2 „ . . .	27	11.4	5.7	106	11	11.4	5.4	103	21	10.3	3.3	096	1	7.0	7.0	075	6	9.2	7.5	054	8	10.0	5.2	086
9.0 „ . . .	22	18.9	17.3	094	9	16.6	15.4	090	18	19.1	16.0	113					1	8.0	8.0	115	8	13.9	13.5	096

Station.	MASULIPATNAM												MINICOY											
	0130				0730				1430				0130				0730				1430			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	30	3.9	1.8	257	30	4.0	2.8	260	30	5.2	3.3	274	30	8.5	8.1	289	30	7.4	6.6	285	30	8.3	7.7	285
0.15 a. g. . .	28	11.8	7.3	254	28	12.0	10.0	260	29	9.3	6.8	278	30	14.0	12.3	290	29	14.3	12.8	288	29	14.9	14.7	287
0.3 a. m. s. l. . .	28	13.6	8.6	257	28	16.0	13.3	271	29	10.7	7.8	280	30	14.6	13.7	291	29	14.1	12.6	290	29	14.9	14.0	289
0.6 „ . . .	28	14.0	9.9	267	28	17.3	14.5	280	29	11.9	9.3	287	30	16.8	15.7	293	29	15.7	14.3	293	29	16.9	15.7	290
0.9 „ . . .	28	14.4	12.5	278	27	16.9	15.1	288	28	14.1	11.7	295	30	18.1	17.1	294	29	16.7	15.5	293	29	18.2	17.2	067
1.5 „ . . .	27	15.9	11.9	285	25	16.1	14.2	296	27	17.5	14.6	300	25	16.0	15.2	297	27	15.7	14.6	296	26	16.8	15.7	295
2.1 „ . . .	26	17.3	13.5	288	24	16.0	12.6	299	25	16.9	14.0	297	17	14.6	14.1	297	25	15.2	14.3	295	22	15.8	13.5	300
3.0 „ . . .	18	13.3	8.8	296	20	13.8	10.0	289	20	14.3	11.1	289	13	14.7	14.2	292	20	15.5	14.5	292	15	13.7	13.3	296
4.5 „ . . .	4	7.8	3.5	313	12	10.3	1.9	250	13	10.6	4.5	272	5	8.6	6.1	319	12	9.5	8.7	285	8	9.4	8.5	298
5.4 „ . . .	3	6.3	5.7	007	9	12.7	2.4	151	12	9.1	2.8	303	2	15.0	13.6	281	8	6.4	4.9	278	7	5.1	3.4	307
6.0 „ . . .	2	6.5	5.5	360	8	13.1	2.6	127	12	10.5	2.3	315	2	14.5	13.1	281	6	4.3	1.5	155	6	7.2	1.1	296
7.2 „ . . .	1	14.0	14.0	065	4	13.3	9.2	084	7	10.6	8.6	072	1	10.0	10.0	230	2	13.0	13.0	061	5	5.6	2.1	056
9.0 „ . . .					2	20.0	19.8	107	6	15.9	12.4	107					1	17.0	17.0	115	4	13.3	12.9	081

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

September 1956

Station.	MOHANBARI												MUSSOORIE								NAGPUR			
	0130				0730				1430				0730				1430				0130			
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . .	30	1.5	0.5	063	30	1.4	1.1	053	30	1.8	1.1	048	30	1.4	0.7	356	30	3.8	2.8	194	30	3.8	2.2	29
0.15 a. g. .	27	6.8	4.2	045	25	5.4	5.1	058	30	4.9	2.9	063	22	4.0	1.2	024	6	6.0	6.0	207	28	10.5	5.1	31
0.3 a. m. s. l. .	27	6.6	4.0	045	25	6.7	5.7	059	30	4.8	3.0	063												
0.6 „ .	27	6.6	3.5	046	25	8.2	5.6	051	30	4.6	2.6	072									28	11.3	5.5	32
0.9 „ .	26	5.7	3.2	045	22	7.6	4.9	057	29	4.6	1.2	102									27	11.2	5.6	34
1.5 „ .	23	5.8	1.9	057	21	7.3	3.3	078	30	6.3	4.0	205									27	9.3	2.8	35
2.1 „ .	22	6.9	1.2	115	20	7.0	1.7	135	28	8.5	6.6	194	22	4.3	1.7	022	6	6.8	6.8	208	26	8.0	1.4	02
3.0 „ .	17	6.6	2.2	133	16	5.8	3.6	126	27	8.1	5.5	182	21	6.0	0.4	001	2	5.0	4.1	086	21	7.9	3.0	03
4.5 „ .	4	10.5	9.5	154	12	9.0	4.8	095	22	8.8	1.7	141	15	9.1	2.0	088	2	10.0	7.1	311	5	8.0	2.4	14
5.4 „ .	2	16.0	9.1	113	12	9.4	5.7	089	20	12.1	1.4	025	12	7.9	3.2	266								
6.0 „ .	1	26.0	26.0	080	9	10.1	6.2	071	16	14.8	2.7	336	11	11.3	5.7	240								
7.2 „ .					9	9.9	3.3	352	10	12.7	3.7	317	8	16.1	9.5	259								
9.0 „ .					6	18.0	15.2	290	7	17.2	14.3	293	2	11.5	9.9	256								

Station.	NAGPUR												NEW DELHI											
	0830*				1430				2030*				0130				0830*				1430			
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . .	30	5.9	3.5	320	30	7.6	4.0	297	27	3.7	1.9	317	30	5.5	2.9	253	30	8.8	4.6	278	30	7.4	3.9	32
0.15 a. g. .	30	7.9	4.5	318	28	10.6	6.2	318	27	5.1	2.6	315	30	13.4	5.4	236	30	10.0	5.3	285	30	10.2	5.1	32
0.3 a. m. s. l. .													30	10.8	4.2	231	30	10.4	5.8	280	30	10.8	5.4	32
0.6 „ .	30	9.6	4.8	323	28	10.6	5.1	326	27	6.7	3.2	321	30	14.2	5.6	253	30	13.2	7.0	285	30	10.2	4.0	33
0.9 „ .	30	12.8	6.5	333	28	11.0	5.1	325	27	10.3	5.3	331	29	12.8	5.4	285	30	15.4	7.9	300	29	9.8	4.7	32
1.5 „ .	29	13.0	5.8	330	28	12.0	5.4	330	27	11.1	4.7	344	29	12.0	6.6	313	30	14.5	7.7	325	29	9.8	5.6	31
2.1 „ .	29	11.3	3.8	001	24	11.7	4.3	358	27	10.2	3.9	348	27	11.7	7.7	326	30	14.5	9.0	338	28	11.1	7.3	32
3.0 „ .	29	9.6	4.6	030	19	9.2	3.4	013	27	9.5	3.4	001	25	10.8	5.2	355	30	11.7	7.7	345	28	12.8	8.6	33
4.5 „ .	28	9.4	2.4	043	9	9.3	3.1	297	26	10.7	5.1	022	3	6.3	3.2	136	30	9.5	4.9	335	27	10.3	5.1	32
5.4 „ .	28	10.3	5.2	069	8	8.3	1.5	046	24	9.5	5.0	053	2	7.5	6.7	193	30	10.0	2.5	297	26	9.2	4.1	31
6.0 „ .	27	11.1	6.4	077	6	7.2	0.9	048	23	9.3	5.7	062	2	8.5	4.5	188	30	10.6	2.9	260	26	10.5	4.9	29
7.2 „ .	26	12.3	9.0	079	5	6.8	3.3	105	21	10.1	7.8	067					30	11.6	4.0	245	23	12.9	7.9	27
9.0 „ .	26	14.9	12.8	079	2	13.0	12.5	110	14	13.1	10.9	062					26	14.5	6.2	255	21	16.5	10.4	27

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

September 1956

Station.	NEW DELHI				POONA												PORT BLAIR											
	2030*				0130				0730				1430				0130				0730							
Time in I.S.T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	29	5.3	1.6	305	30	4.0	3.9	268	30	2.7	2.4	255	30	6.4	5.8	272	30	5.9	5.6	233	30	6.7	5.7	238				
15 a. g. . . .	27	6.0	1.7	327	30	10.6	9.5	265	30	9.2	8.8	263	30	14.2	13.2	273	29	15.4	14.4	239	28	12.5	11.4	243				
3 a. m. s. l. . .	27	5.6	1.7	331													29	16.1	15.1	240	28	15.1	13.7	243				
6 "	27	7.9	3.0	315	30	5.6	5.1	263	30	4.5	4.1	257	30	8.9	8.0	275	29	18.3	16.8	247	28	18.6	17.1	246				
9 "	26	11.2	5.7	309	30	13.6	11.7	269	30	12.8	11.8	269	30	14.2	13.3	271	29	16.9	15.4	251	27	18.0	16.2	246				
15 "	26	11.3	6.2	304	20	14.5	8.5	275	25	17.6	13.6	279	21	13.1	10.2	270	23	13.3	11.5	254	21	16.0	14.5	247				
21 "	26	11.6	7.6	309	12	10.7	5.2	263	15	13.7	6.1	261	9	9.7	1.9	245	18	11.0	8.7	252	17	11.4	9.8	244				
30 "	26	12.5	8.5	326	8	5.9	2.3	276	9	8.8	3.3	115	4	8.7	4.5	136	6	7.5	3.6	173	10	11.5	8.1	245				
35 "	25	9.1	4.0	001					5	6.4	3.9	046									5	9.0	3.2	168				
4 "	25	7.8	0.4	020					4	10.0	9.7	056									3	8.0	6.2	080				
10 "	24	7.8	0.9	325					3	11.0	10.6	053									1	3.0	3.0	130				
22 "	25	11.4	6.3	273																								
30 "	23	14.7	8.1	263																								

Station.	PORT BLAIR								RAIPUR								SANTACRUZ															
	1430				2030*				0130				0730				1430				0130											
Time in I.S.T.																																
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D				
Surface	30	11.8	11.0	242	15	7.3	6.6	250	30	4.2	2.2	235	30	4.5	1.7	243	30	4.3	1.2	271	30	3.2	2.7	261								
15 a. g.	28	14.6	13.3	245	15	9.2	8.0	253	25	12.3	5.7	245	29	12.0	4.7	246	27	9.5	2.8	298	28	9.3	6.7	253								
3 a. m. s. l. . .	28	15.6	14.3	247	15	10.5	9.1	255													28	10.0	7.9	259								
6 "	28	18.8	16.4	251	15	13.1	11.0	259	25	13.4	5.7	258	29	14.4	5.1	285	27	9.5	2.6	298	28	11.2	8.5	264								
9 "	23	19.2	17.2	251	15	15.6	12.4	259	23	14.1	6.0	285	27	15.9	5.2	306	26	9.4	2.7	311	23	11.5	7.5	267								
15 "	16	15.4	11.5	256	15	14.0	10.5	260	22	12.0	2.9	295	23	13.7	4.7	316	24	9.9	2.5	353	17	11.4	8.3	268								
21 "	10	13.2	8.3	249	15	13.1	8.1	247	17	11.9	3.4	347	18	14.3	4.1	345	22	12.5	2.5	010	8	9.6	4.3	267								
30 "	2	9.5	1.5	252	15	12.6	7.1	239	16	11.3	3.2	007	13	12.1	4.7	039	17	12.6	3.6	359	6	8.5	4.5	188								
35 "	1	7.0	7.0	170	15	14.2	3.2	248	2	7.0	5.5	163	7	9.9	2.2	079	8	7.3	2.1	355	1	7.0	7.0	270								
4 "					15	13.9	1.9	033	1	12.0	12.0	130	6	10.7	5.7	089	7	7.3	2.2	120												
60 "					15	13.5	3.6	080					5	8.6	5.2	114	7	6.7	2.5	121												
7.2 "					14	14.1	6.3	113					3	11.0	10.8	102	3	5.3	4.9	175												
9.0 "					12	17.6	10.4	091					1	10.0	10.0	135	3	13.0	12.2	125												

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

September 1956

Station.	SANTACRUZ												TEZPUR															
	0730				1430				2030*				0130				0730				1430							
Time in I.S.T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	30	5.6	3.6	260	30	8.4	7.4	280	30	5.2	4.5	263	30	1.0	0.1	139	30	2.2	1.1	080	30	3.7	0.2	35				
0.15 a.g. . .	30	11.8	7.0	267	29	12.8	10.9	273	30	12.9	10.7	271	28	7.0	1.4	119	28	5.7	3.2	082	28	6.1	0.5	10				
0.3 a. m.s.l. .	30	12.1	7.7	266	29	12.9	11.2	274	30	12.5	10.6	273	28	7.6	1.2	150	28	6.1	3.8	086	28	6.7	1.4	10				
0.6 „ . . .	30	12.6	8.1	266	28	14.4	12.9	274	30	12.1	10.3	275	27	7.7	0.9	204	26	7.9	4.3	088	28	6.4	1.5	14				
0.9 „ . . .	30	13.2	9.6	271	18	13.0	11.5	268	30	11.8	9.9	280	26	7.5	0.5	232	26	9.4	4.4	087	28	6.8	2.4	18				
1.5 „ . . .	30	13.1	8.9	271	11	10.1	6.8	265	30	11.9	8.8	275	23	9.8	0.9	272	25	11.2	3.2	117	28	9.0	4.4	20				
2.1 „ . . .	30	12.5	7.6	262	8	9.4	3.1	217	30	11.3	7.6	273	19	10.1	0.9	186	22	11.8	4.8	108	27	11.5	5.5	20				
3.0 „ . . .	30	10.6	4.3	284	4	10.0	6.0	162	29	9.7	4.4	780	9	9.0	8.1	197	15	11.9	4.8	114	26	11.8	3.9	17				
4.5 „ . . .	29	9.4	0.6	040	1	12.0	12.0	085	29	8.3	1.8	287	3	9.0	4.9	173	3	6.0	4.2	120	18	11.2	2.7	10				
5.4 „ . . .	27	9.2	1.1	067	1	8.0	8.0	090	28	8.7	1.0	038	3	9.7	5.7	211	2	3.0	2.1	222	16	10.6	2.0	05				
6.0 „ . . .	27	9.5	2.9	080	1	8.0	8.0	080	28	8.6	2.5	065	2	8.5	4.7	177	2	4.5	2.7	196	16	9.8	0.7	04				
7.2 „ . . .	26	11.5	8.3	088					26	10.6	7.9	081					1	8.0	8.0	185	13	10.8	4.6	28				
9.0 „ . . .	25	15.5	13.5	087					22	15.9	14.5	091					1	10.0	10.0	210	10	20.4	7.8	27				

Station.	TIRUCHIRAPALLI												TRIVANDRUM															
	0130				0730				1430				0130				0730				1430							
Time in I.S.T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	30	13.2	12.8	270	30	10.6	10.5	273	30	13.0	11.9	275	30	3.7	3.5	327	30	2.7	2.5	346	30	9.8	9.3	30				
0.15 a.g. . .	20	16.7	16.5	276	30	17.4	17.1	274	28	15.0	13.7	278	29	14.1	13.8	319	30	10.7	10.5	336	29	14.1	13.8	29				
0.3 a. m.s.l. .	20	18.7	18.4	274	30	20.6	20.4	274	28	14.7	13.6	274	29	16.4	16.0	317	30	13.4	13.1	325	29	15.9	15.7	29				
0.6 „ . . .	20	23.7	23.5	273	30	26.2	26.0	278	28	14.7	13.9	273	29	20.9	20.2	311	29	18.1	17.6	311	29	20.6	20.3	30				
0.9 „ . . .	19	21.3	20.9	276	30	23.0	22.3	280	28	14.5	1.2	268	29	22.8	22.6	305	28	19.6	19.0	307	29	21.6	20.8	30				
1.5 „ . . .	19	16.9	16.5	282	30	17.5	16.6	274	28	16.6	16.4	264	23	23.2	22.7	298	26	20.8	20.3	301	27	21.0	20.3	30				
2.1 „ . . .	16	12.4	11.0	281	30	12.0	11.6	276	25	17.2	16.8	265	16	22.4	20.0	293	25	19.5	18.9	293	21	19.8	19.5	30				
3.0 „ . . .	14	11.7	10.4	294	27	12.1	11.2	291	20	15.3	14.7	278	9	18.2	17.7	299	23	15.4	10.5	299	15	15.2	14.9	29				
4.5 „ . . .	4	9.3	9.1	275	19	11.6	10.8	285	10	11.3	9.4	280	1	5.0	5.0	270	9	7.1	5.4	317	6	10.8	10.1	29				
5.4 „ . . .	3	11.0	8.5	271	16	7.5	3.9	274	6	8.3	2.7	296					5	7.2	4.3	251	3	6.7	6.2	29				
6.0 „ . . .	2	8.5	3.5	250	11	5.6	1.7	221	6	9.2	0.7	344					5	7.0	4.5	270	2	7.5	6.1	29				
7.2 „ . . .	1	4.0	4.0	060	9	9.3	4.8	087	4	10.0	5.6	056					1	12.0	12.0	165	2	8.0	3.3	29				
9.0 „ . . .					3	19.3	18.5	094	2	12.5	12.3	084					1	6.0	6.0	130								

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

September 1956

Station	TRIVANDRUM				UDAIPUR												VENGURLA												
	2030*				0130				0730				1430				0130				0730								
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D					
Alt. in Km.																													
Surface	24	10.5	10.4	309	30	0.7	0.2	335	30	0.7	0.4	270	30	3.0	0.9	234	30	0.9	0.6	337	30	0.9	0.3	158					
15 a. g.	24	12.9	12.1	310	30	7.6	1.9	275	30	6.4	1.9	300	29	8.6	1.7	245	29	7.9	5.7	297	28	6.2	2.3	297					
3 a. m. s. l.	24	13.9	13.7	305													29	10.9	8.9	299	27	9.6	8.0	298					
6 "	24	16.9	16.6	305													29	14.1	12.7	300	25	14.2	12.7	299					
9 "	24	18.5	18.1	303	30	9.9	2.3	258	30	8.8	2.1	292	29	8.6	2.1	250	27	15.6	14.7	300	21	15.8	14.7	302					
5 "	24	21.2	20.6	299	27	11.1	2.5	132	23	8.8	2.2	109	28	9.0	0.2	192	21	14.5	13.2	293	17	16.9	15.7	291					
1 "	24	21.1	20.7	294	26	9.0	6.4	099	23	11.0	8.7	101	23	10.4	5.8	098	16	12.1	10.3	284	16	12.6	10.2	286					
0 "	24	20.5	19.9	290	21	10.1	7.0	091	19	12.0	9.5	094	15	10.3	7.0	120	12	11.7	8.7	293	11	12.8	7.4	300					
5 "	23	11.0	9.7	289	8	9.5	6.1	090	15	7.1	3.8	080	8	12.3	8.4	091	7	5.3	4.2	310	7	7.7	5.6	327					
4 "	23	8.4	4.9	285	2	8.0	7.9	110	12	9.2	1.8	080	1	10.0	10.0	075	2	6.5	4.9	308	5	6.2	3.9	360					
0 "	23	7.6	2.9	283					12	11.4	2.5	084	1	9.0	9.0	080	1	7.0	7.0	360	5	7.2	3.9	041					
2 "	23	9.2	3.3	120					8	17.0	9.3	072													4	10.8	7.9	064	
0 "	23	16.2	14.5	103					1	21.0	21.0	053														2	15.0	15.0	090

Station	VENGURLA				VERAVAL												VISAKHAPATNAM											
	1430				0130				0730				1430				0130				0730							
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Alt. in Km.																												
Surface	30	5.8	4.5	264	30	8.9	6.8	274	30	7.4	4.3	276	30	10.0	7.8	268	30	2.8	1.2	266	30	1.9	1.2	264				
15 a. g.	29	11.2	9.6	277	28	13.1	9.6	274	28	12.9	7.7	276	29	14.0	12.1	270	27	7.3	4.6	249	26	5.8	4.5	256				
3 a. m. s. l.	28	13.0	11.8	289	28	14.4	10.4	275	28	13.6	9.7	270	29	15.0	12.5	270	27	8.9	5.1	254	26	7.3	6.2	257				
6 "	26	17.3	16.5	296	28	14.6	10.8	269	28	14.5	10.3	270	28	13.8	10.8	271	26	10.1	4.8	268	26	9.0	6.8	261				
9 "	23	17.7	17.1	295	24	13.3	8.4	256	26	13.8	9.9	263	26	12.6	8.4	275	24	9.2	5.4	275	26	8.8	6.5	281				
5 "	18	13.1	11.4	297	18	12.3	4.4	230	21	11.0	6.0	245	22	11.4	5.2	258	24	10.6	6.1	266	26	10.2	6.2	280				
1 "	12	11.9	10.1	292	16	10.7	4.3	221	14	10.7	1.9	178	14	13.0	6.3	224	23	9.2	4.9	276	26	11.2	7.6	282				
10 "	9	9.2	7.9	286	10	8.7	4.7	232	10	9.6	2.8	047	13	10.2	5.3	218	19	9.4	4.4	272	19	9.8	3.7	277				
15 "	5	7.4	4.3	336					5	6.4	4.6	229	12	9.7	6.7	204	10	7.3	2.7	082	12	8.9	2.7	130				
14 "	5	5.2	2.1	337					4	5.7	3.0	249	11	7.8	4.5	169					10	9.1	6.2	110				
10 "	5	7.2	1.9	044					3	10.0	3.2	287	10	7.1	3.4	137					7	9.9	4.0	081				
12 "	4	6.5	5.4	076					3	10.3	1.0	156	6	9.7	7.5	092					1	7.0	7.0	060				
10 "	4	12.5	12.5	087									6	15.8	15.0	086					1	13.0	13.0	105				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds upto 9·0 Km. above mean sea level

September 1956

Station	VISAKHAPATNAM			
Time in I.S.T.	1430			
Ht. in Km.	n	V	v	D
Surface . . .	30	7·9	2·8	203
0·15 a. g. . .	28	8·9	4·8	210
0·3 a. m. s. l. . .	28	8·8	4·7	217
0·6 „ . . .	27	8·0	4·6	238
0·9 „ . . .	26	8·4	5·4	274
1·5 „ . . .	23	10·8	6·8	294
2·1 „ . . .	22	11·8	6·9	297
3·0 „ . . .	21	10·9	7·0	284
4·5 „ . . .	15	11·5	4·1	274
5·4 „ . . .	12	10·3	2·2	211
6·0 „ . . .	10	11·9	2·1	150
7·2 „ . . .	3	9·7	6·8	122
9·0 „ . . .	3	12·7	10·6	089

TABLE V—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds above 9.0 Km. above mean sea level

September 1956

Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D						
	AHMEDABAD					BAGHDOGRA					BIKANER					GAUHATI					GWALIOR				
	0730 hrs.					1430 hrs.					0730 hrs.					1430 hrs.					1430 hrs.				
0.5	5	12.6	5.9	094	10.5	1	37.0	37.0	340	10.5	1	10.0	10.0	355	10.5	2	17.0	17.0	092	10.5	4	19.7	14.2	258	
2.0	3	9.3	7.6	113	12.0	1	15.0	15.0	050						12.0	2	18.0	17.9	216						
4.1	3	24.7	22.5	113						10.5	3	20.3	19.1	317	10.5	23	16.7	3.7	318						
5.2	2	18.0	17.6	097		BAIRAGARH				12.0	2	24.5	24.6	331	12.0	21	21.5	8.0	305		IMPHAL				
3.0	1	24.0	24.0	075		0730 hrs.									14.1	5	17.2	12.0	040		0730 hrs.				
	1430 hrs.				10.5	2	10.5	8.7	099		CHIKALTHANA										10.5	2	21.0	19.7	095
0.5	3	8.6	6.7	159						10.5	2	17.5	16.3	091		GAYA									
1.0	2	7.5	1.8	028		BAMRAULI										0730 hrs.									
1.1	1	5.0	5.0	050		0830 hrs.*									10.5	1	12.0	12.0	110		JABALPUR				
1.2	1	9.0	9.0	055																	0730 hrs.				
1.0	1	11.0	11.0	085	10.5	8	12.7	6.0	100																
0.0	1	38.0	38.0	105	12.0	6	20.3	12.6	085	10.5	10	14.5	3.3	290						10.5	1	6.0	6.0	120	
					14.1	1	13.0	13.0	055	12.0	8	17.3	6.9	287		GOPALPUR				12.0	1	10.0	10.0	135	
	AMBALA				16.2	1	17.0	17.0	070	14.1	5	16.8	3.2	336		0730 hrs.*									
	0730 hrs.					2030 hrs.*				16.2	2	16.5	16.1	059	10.5	1	17.0	17.0	105						
1.5	1	3.0	3.0	270	10.5	14	13.6	4.1	017	18.0	1	26.0	26.0	075	10.5	1	35.0	35.0	100		JAGDALPUR				
1.0	1	8.0	8.0	280	12.0	4	14.5	7.9	075					12.0	1	35.0	35.0	100			0730 hrs.				
	1430 hrs.																			10.5	5	17.8	17.2	096	
1.5	10	25.5	21.7	274		BAREILLY				10.5	19	21.9	14.0	118	10.5	5	24.8	23.4	098	12.5	3	25.7	25.3	096	
1.0	6	26.1	21.1	255		0730 hrs.				12.0	18	21.8	14.8	096	12.0	3	29.0	29.0	084	14.1	2	35.1	31.5	095	
1.1	6	23.7	20.1	244	10.5	2	17.5	12.0	211	14.1	5	22.2	14.0	071	14.1	1	51.0	51.0	100						
1.2	5	25.2	21.8	251						16.2	2	42.5	42.3	083											
1.0	4	22.5	18.7	243		BHAGALPUR															JODHPUR				
1.0	2	9.0	5.5	106		0730 hrs.				10.5	2	27.0	6.8	056		GORAKHPUR					0830 hrs.*				
1.0	2	17.5	17.3	109																10.5	24	16.3	5.6	300	
1.0	2	18.0	17.5	071	10.5	1	23.0	23.0	095		2030 hrs.*					0730 hrs.				12.0	20	12.7	1.6	332	
1.0	1	44.0	44.0	080	12.0	1	16.0	16.0	085	10.5	21	21.0	12.2	091	10.5	1	16.0	16.0	125	14.1	15	13.5	5.8	060	
										12.0	20	22.9	12.1	063						16.2	6	19.8	14.7	083	
	ANANTAPUR					BHUJ										GWALIOR									
	0730 hrs.					0730 hrs.				14.1	6	30.3	22.0	046		0730 hrs.									
1.5	3	22.7	22.5	093	10.5	4	10.5	2.6	070	16.2	1	37.0	37.0	260		0730 hrs.					1430 hrs.				
1.0	2	34.0	34.0	083	12.0	1	7.0	7.0	195						10.5	11	19.0	12.5	259						
															12.0	11	19.4	13.9	264	10.5	1	12.0	12.0	320	
										10.5	19	20.2	6.6	249	14.1	9	11.9	7.6	315	12.0	1	11.0	11.0	335	
	BAGHDOGRA				10.5	1	9.0	9.0	140	12.0	18	24.8	7.3	287	16.2	7	18.1	14.6	063						
	0730 hrs.				12.0	1	9.0	9.0	035	14.1	7	18.4	13.4	054	18.0	4	20.3	20.2	060						
					14.1	1	15.0	15.0	095	16.2	3	23.3	22.6	072	20.0	4	31.0	28.9	077			2030 hrs.*			
1.5	1	16.0	16.0	250	16.2	1	16.0	16.0	090	18.0	2	22.5	22.1	080	23.0	1	64.0	64.0	080	10.5	14	15.1	5.4	331	

RADIOSONDE DATA**September, 1956**

During the month, observations of upper air temperature, pressure and humidity were made at 12 stations in India as given in the list below. For a detailed description of the instruments used a reference may be made to the I.M.D. Scientific Notes Nos. 112 and 113 (Volume IX).

LIST OF RADIOSONDE STATIONS IN INDIA

Serial No.	Name of station	Type of instrument used	Date of starting	Hours of routine observations in GMT during the month	Remarks
1	Allahabad	Clock type	1st October, 1944	03 and 15	
2	Bombay	Clock type	7th September, 1954	03 and 15	
3	Calcutta	Clock type	13th December, 1946	03 and 15	Fan type used from 13th December, 1946 to 30th November, 1947.
4	Gauhati	Clock type	22nd July, 1955	03 and 15	
5	Jodhpur	Clock type	17th April, 1946	03 and 15	
6	Madras	Fan type	29th June, 1946	03 and 15	
7	Nagpur	Fan type	1st October, 1946	03 and 15	
8	New Delhi	Clock type	3rd December, 1943	03 and 15	
9	Port Blair	Fan type	4th December, 1949	15	
10	Trivandrum	Fan type	1st July, 1947	15	
11	Veraval	Fan type	3rd October, 1944	15	
12	Visakhapatnam	Fan type	8th December, 1946	15	

RADIOSONDE DATA

TABLE VI--MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(A) From Ascents at 03 Hours G. M. T.

September 1956

Standard Pressure Surface mbs.	ALLAHABAD Surf. Pr. (993 mb.)						BOMBAY (1006 mb.)						CALCUTTA (1003 mb.)					
	No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A			
			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point
Surface	30	98	300.7	306	297	297.7	30	9	299.5	301	298	297.8	30	6	302.0	305	297	298
1000	30	30	..	..	..	..	30	62	..	..	..	..	30	37	..	..	..	..
900	26	959	295.5	299	293	292.1	30	986	293.9	296	291	291.9	30	966	295.5	299	292	292
850	26	1454	292.8	296	289	288.8	30	1480	291.3	294	288	288.8	30	1462	292.7	296	288	289
800	25	1976	289.9	294	287	285.4	30	1998	288.7	292	285	285.7	30	1984	290.1	294	286	286
700	25	3107	284.4	289	280	279.2	30	3125	284.4	287	281	278.4	30	3113	284.2	288	281	280
600	22	4375	277.5	281	273	271.9	29	4400	278.7	282	274	270.8	30	4387	277.9	282	273	273
500	19	5838	269.8	274	266	..	29	5875	271.7	276	265	269.4	27	5858	270.2	274	264	265
400	15	7578	260.7	265	257	..	28	7630	263.3	269	257	..	22	7602	260.3	266	254	.
300	11	9735	248.6	251	247	..	26	9799	250.5	258	244	..	19	9742	246.7	257	239	.
250	10	11050	240.6	243	236	..	24	11112	241.8	250	234	..	18	11046	237.8	248	227	.
200	9	12594	230.1	234	226	..	23	12664	231.8	242	215	..	14	12568	228.0	238	218	.
175	8	13453	223.4	229	219	..	23	13560	225.5	237	204	..	9	13505	223.2	233	213	.
150	7	14445	215.0	219	211	..	18	14585	220.5	230	195	..	6	14525	217.5	227	203	.
125	5	15540	206.0	209	201	..	17	15743	214.6	226	193	..						
100							12	17150	213.4	228	196	..						
80							9	18650	220.4	233	207	..						
	GAUHATI (1001 mb.)						JODHPUR (981 mb.)						MADRAS (1006 mb.)					
Surface	30	49	301.2	303	299	300.0	30	218	300.5	305	298	294.6	30	15	301.3	303	299	298
1000	29	56	..	..	..	..	30	46	..	..	..	..	28	64	..	..	..	..
900	29	982	294.9	297	291	293.0	30	975	295.8	301	291	289.5	28	992	295.1	297	292	288
850	29	1478	292.3	295	288	289.4	30	1472	293.7	298	289	285.7	28	1487	292.3	294	289	287
800	29	1998	289.1	293	284	286.6	30	1996	291.8	294	287	281.6	28	2006	289.3	292	286	284
700	28	3124	283.1	287	278	279.8	30	3127	284.4	289	280	272.1	27	3132	283.1	288	279	278
600	26	4394	276.5	281	270	273.0	30	4398	276.4	280	272	262.0	27	4401	276.8	281	273	271
500	26	5855	269.0	275	261	..	29	5860	270.3	275	265	..	27	5863	269.4	272	265	.
400	26	7587	259.9	269	248	..	28	7599	261.2	268	255	..	26	7590	258.7	261	253	.
300	23	9724	246.7	259	231	..	26	9753	248.3	254	240	..	21	9705	244.0	251	239	.
250	21	11020	238.1	252	219	..	23	11058	239.3	245	233	..	18	10986	235.9	243	230	.
200	20	12547	228.3	242	207	..	22	12586	228.9	235	217	..	16	12491	226.0	234	221	.
175	12	13418	223.9	238	215	..	18	13470	222.8	229	215	..	14	13364	220.6	228	217	.
150	8	14480	220.4	233	209	..	17	14478	215.7	223	205	..	14	14356	214.6	224	209	.
125	8	15668	215.1	227	202	..	14	15620	208.4	214	196	..	10	15454	206.8	215	199	.
100	6	17118	212.8	223	197	..	6	17053	199.5	207	191	..	10	16806	203.9	215	199	.
80													5	18328	209.8	213	207	.

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(A) From Ascents at 03 Hours G. M. T.

September 1956

Standard Pressure Surface mbs.	NAGPUR Surf. Pr. (970 mb.)						NEW DELHI (981 mb.)					
	No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A			
			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point
Surface	28	311	298.4	301	297	294.9	27	210	300.8	304	296	294.3
1000	28	45	..	..	..	..	27	41	..	..	..	..
900	28	968	295.6	300	293	290.2	27	972	297.2	301	293	290.9
850	28	1463	293.0	295	290	287.8	27	1471	293.8	299	290	287.3
800	28	1984	290.1	293	286	285.5	27	1994	290.7	296	286	285.1
700	28	3112	284.6	287	281	277.5	27	3123	284.0	288	280	276.3
600	27	4390	278.9	282	274	270.5	27	4392	276.5	281	271	269.8
500	27	5865	271.6	277	269	..	27	5856	269.5	274	264	..
400	26	7613	261.5	267	255	..	27	7590	260.3	266	251	..
300	26	9762	249.1	256	244	..	24	9733	246.5	252	239	..
250	23	11103	240.4	251	232	..	22	10979	237.5	244	231	..
200	21	12604	229.4	239	219	..	21	12545	227.0	233	220	..
175	19	13475	223.3	230	213	..	19	13417	221.2	228	214	..
150	19	14469	216.5	226	205	..	17	14398	214.6	223	206	..
125	16	15628	210.9	219	205	..	15	15539	208.6	217	197	..
100	14	17017	206.3	211	201	..	13	16933	203.6	212	196	..
80	12	18365	206.8	213	199	..	7	18241	203.6	211	193	..

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(B) From Ascents at 15 Hours G. M. T.

September 1956

Standard Pressure Surface mbs.	NAGPUR Surf. Pr. (969 mb.)						NEW DELHI (979 mb.)						PORT BLAIR (998 mb.)					
	No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A			
			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point
Surface	27	311	299.6	303	296	295.4	27	210	302.0	305	296	295.1	29	79	298.8	300	297	297.7
1000	27	27	..	..	..	..	27	15	..	..	..	..	29	65	..	..	..	..
900	27	957	296.9	303	294	290.5	27	956	299.7	306	293	291.7	29	989	294.0	297	291	290.9
850	27	145	293.5	297	290	287.9	27	1459	296.1	302	291	289.5	29	1482	291.2	294	289	288.2
800	27	1978	289.9	292	287	285.4	27	1986	292.3	297	288	286.9	29	2000	288.7	291	286	284.1
700	27	3107	284.0	286	281	277.7	27	3120	285.1	293	281	279.4	29	3125	283.6	288	281	277.1
600	26	4383	277.4	281	275	271.2	26	4395	277.0	282	273	269.7	29	4395	278.8	281	274	268.9
500	25	5846	269.8	275	265	..	25	5858	269.4	274	262	..	29	5857	269.2	275	261	..
400	21	7591	260.8	268	255	..	25	7591	259.9	264	255	..	29	7587	259.6	271	253	..
300	15	9757	248.9	257	243	..	24	9735	247.2	252	242	..	21	9731	246.9	265	239	..
250	14	11060	240.2	252	233	..	24	11029	238.6	243	232	..	17	11015	237.2	247	231	..
200	11	12623	229.9	238	223	..	22	12555	228.1	234	221	..	14	12532	226.9	233	213	..
175	10	13535	224.0	230	216	..	22	13436	222.6	229	214	..	6	13313	216.9	227	210	..
150	10	14515	217.0	223	209	..	21	14424	215.8	223	208	..	6	14283	209.0	211	203	..
125	8	15666	210.0	216	205	..	18	15573	209.4	218	202	..						..
100	5	17067	204.8	211	198	..	12	16929	205.8	215	196	..						..
80																		
Surface	TRIVANDRUM (1002 mb.)						VERAVAL (1004 mb.)						VISAKHAPATNAM (997 mb.)					
	No. of Obs.	Ht. gpm.	Mean	Max.	Min.	Dew Point	No. of Obs.	Ht. gpm.	Mean	Max.	Min.	Dew Point	No. of Obs.	Ht. gpm.	Mean	Max.	Min.	Dew Point
Surface	25	64	298.4	299	298	295.1	28	8	299.2	301	297	297.1	28	48	301.9	304	298	296.7
1000	25	79	..	..	..	..	28	46	..	..	..	..	28	23	..	..	..	..
900	25	996	292.4	295	290	288.2	28	970	294.0	300	290	290.4	28	954	296.2	299	292	291.7
850	25	1487	289.4	292	287	285.6	26	1463	291.9	297	288	287.9	28	1448	293.2	296	289	289.2
800	25	2001	286.9	289	285	282.7	26	1982	289.6	293	285	284.8	28	1969	289.9	293	285	285.9
700	25	3118	282.3	285	279	274.6	25	3109	284.1	288	281	277.3	28	3095	284.2	290	279	279.4
600	25	4380	275.6	279	273	268.2	23	4380	277.9	281	273	270.4	28	4366	277.4	281	271	271.9
500	25	5833	267.8	274	264	..	21	5848	269.8	275	264	..	28	5830	269.5	273	266	..
400	25	7552	257.4	264	254	..	15	7599	261.2	267	254	..	28	7562	260.1	265	258	..
300	25	9668	243.8	249	239	..	9	9730	245.9	251	237	..	21	9700	246.7	255	240	..
250	22	10938	233.5	239	226	..	7	11011	236.5	245	228	..	18	10985	237.8	249	229	..
200	22	12429	221.8	227	214	..	5	12583	230.8	239	221	..	10	12476	225.7	234	219	..
175	21	13272	215.4	221	209	..							8	13307	218.4	225	213	..
150	21	14247	208.9	217	197	..							7	14284	211.3	217	207	..
125	16	15314	202.6	209	192	..							5	15391	203.8	208	200	..
100	16	16646	198.7	204	192	..												..
80	12	18001	201.9	212	193	..												..

Obs.: Number of observations refer to those of dynamic height.

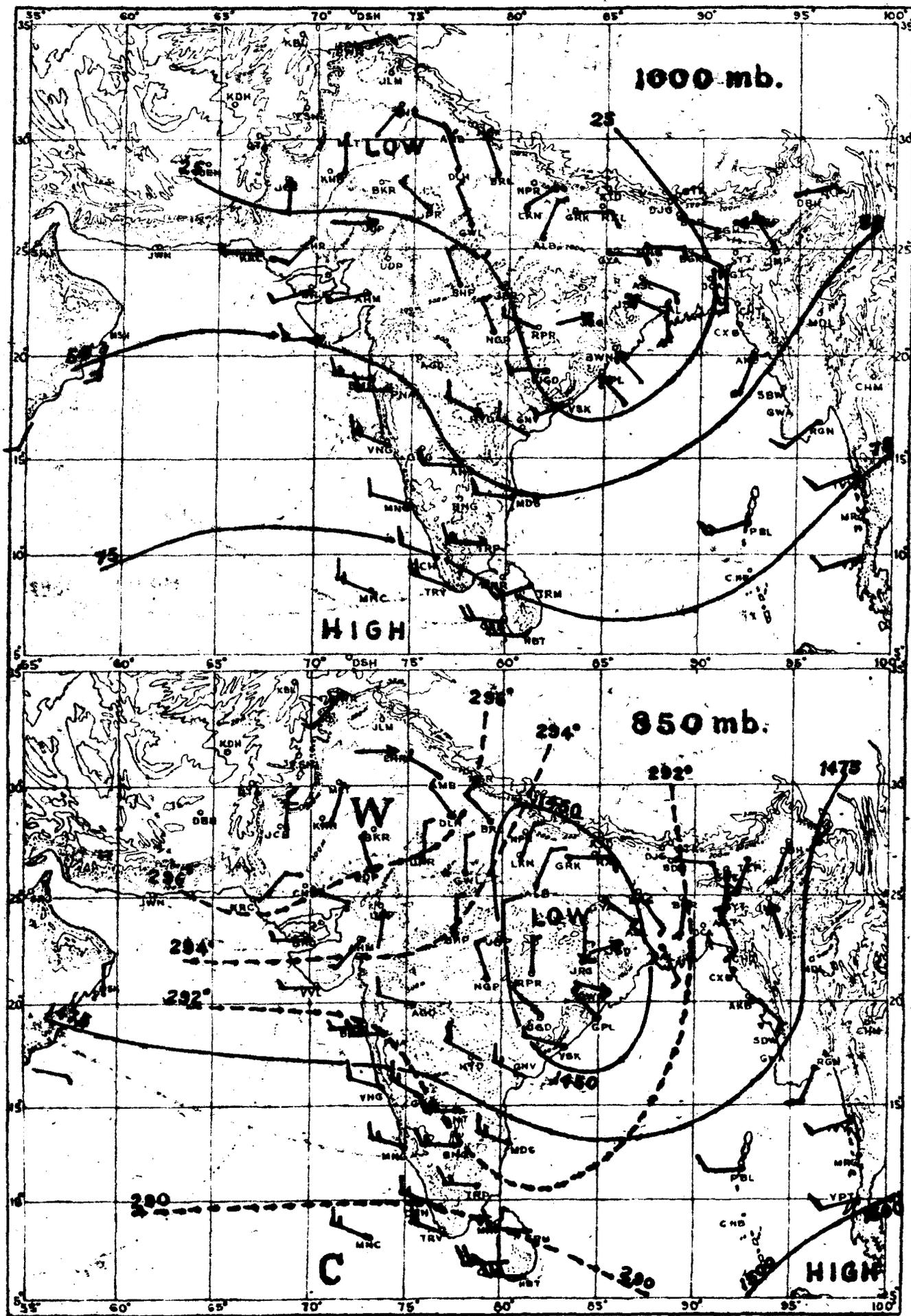
Means are not worked out for temperature and dew point for the 1000 mb. surface and for dew point for standard pressure surfaces with temperature less than 273°A.

Means are not worked out for less than five observations at standard pressure surfaces.

MONTHLY MEAN CONSTANT PRESSURE CHARTS SEPTEMBER 1956.

I. Mel. D.

Plate I.

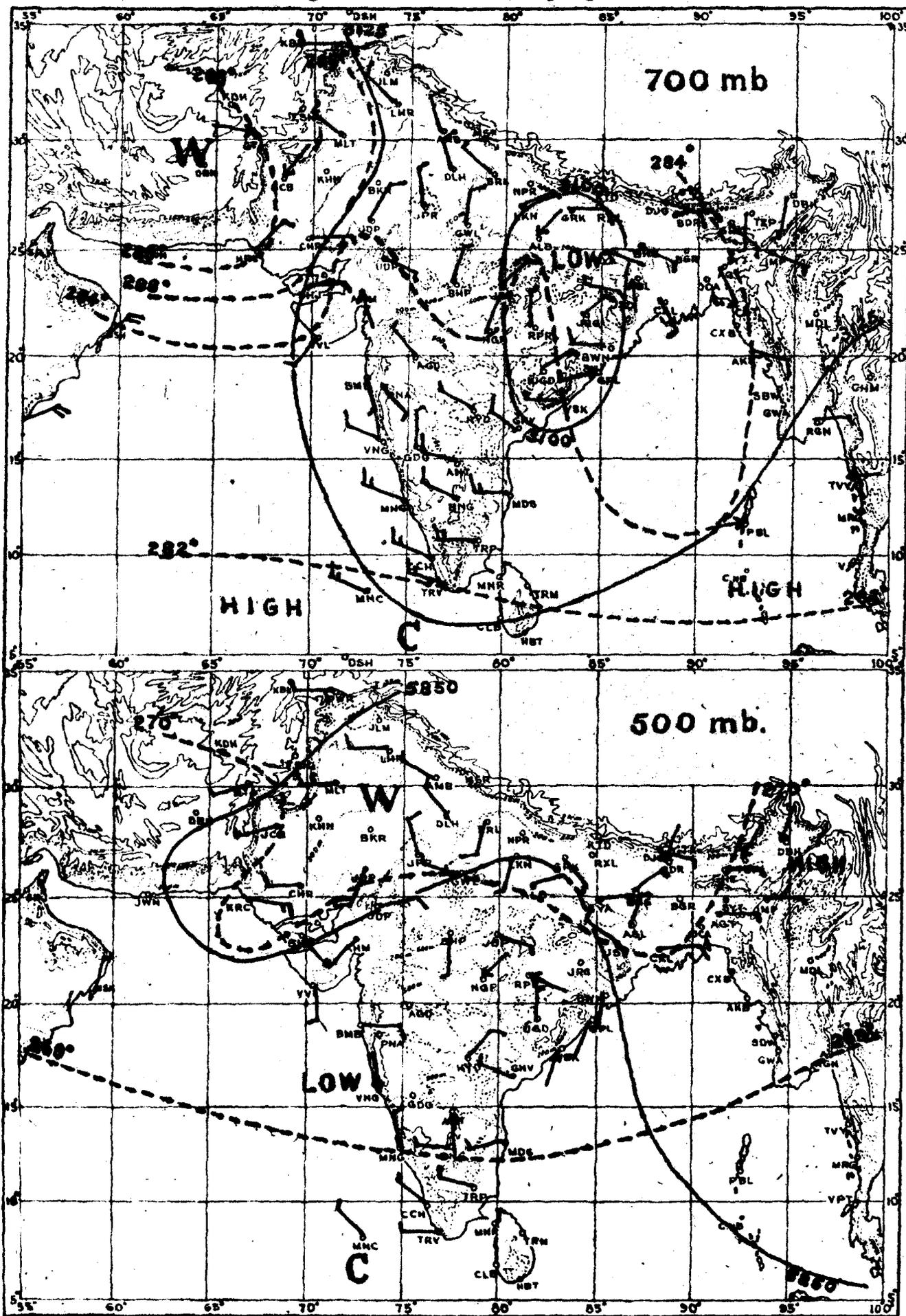


0000/07/1160

MONTHLY MEAN CONSTANT PRESSURE CHARTS SEPTEMBER 1956

I.Mel.D.

Plate II.



RESULTANT WIND — 5 Knots, — 10 Knots, — 50 Knots.

----- Isotherms in degrees absolute. ——— Contours in geopotential metres.

INDIA WEATHER REVIEW, 1956.

Monthly Weather Report

October

Published by authority of the Government of India

Chief features—

(1) Continuance of the activity of the southwest monsoon in the northern and central parts of the country two to three weeks beyond the normal dates,

(2) Very heavy rains in the Punjab (I) and northwest Uttar Pradesh during the 2nd week of the month, and

(3) A spell of very heavy rains in coastal Andhradesa and Orissa towards the end of the month in association with a cyclonic storm in the Bay of Bengal.

A well-marked trough of low pressure appeared in the east central Arabian Sea off the Kanara coast on the 4th. It shifted gradually northwards and concentrated into a depression on the evening of 7th. with its centre about 120 miles to the southwest of Bombay. Moving slowly northwards at first and recurving northeastwards later, it lay over the Gulf of Cambay on the morning of 10th, with its centre between Bhavnagar and Surat. Thereafter, it rapidly moved inland and weakened into a low pressure area which was situated over northeast Rajasthan on the 11th and the Punjab hills on the 12th. It became unimportant on the next day. Under the influence of the depression, the monsoon strengthened along the west coast and in Gujarat and Saurashtra and Kutch between the 8th and 10th, Bhavnagar reporting 6" of rain on the 10th. The depression was also responsible for a pronounced incursion of fresh maritime air into the interior of the country during the second week of the month and this resulted in a revival of the activity of the monsoon over the region extending from coastal Andhradesa and Orissa to east Rajasthan, the Punjab (I) and Uttar Pradesh, the rainfall being particularly heavy in the Punjab (I) and Uttar Pradesh from the 8th to 12th. Some noteworthy amounts of rainfall recorded during the period are given below.

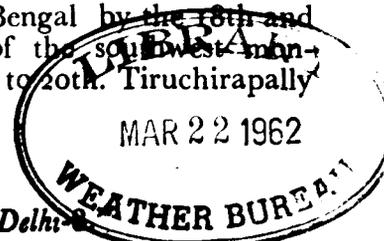
9th—Nainital 12", Roorkee 9", Mussooree 8", Muktesar 7", Dehra Dun and Karnal 5" each
10th—Nainital 7" and Gorakhpur 6". 12th—Dharampur 8" and Pathankot and Dalhousie 5" each.

According to press report, the heavy rains in the Punjab (I) and Uttar Pradesh caused disastrous floods. The rivers in these areas were in spate, submerging low-lying areas and causing considerable damage to crops and hardships to the inhabitants. The water level in river Jamuna near Delhi reached a record level of 677.3 ft. a.s.l., 5.3 ft. above the danger mark, necessitating the evacuation of a large number of people from the threatened areas. Heavy loss of property was also reported from several parts of Delhi State.

With the filling up of the depression, dry northwesterly continental air swept rapidly over the northern parts of the country. The monsoon withdrew from northwest India, west Uttar Pradesh, Madhya Bharat, Gujarat and Saurashtra and Kutch by the 13th and from Vindhya Pradesh, Madhya Pradesh, north Deccan (Desh) and north Konkan by the 16th, about 2 to 3 weeks behind the normal dates of withdrawal for these areas.

In association with a westerly wave that moved across the eastern Himalayas, heavy to very heavy rain occurred in and near the submontane districts of east Uttar Pradesh, of Bihar and of West Bengal between the 14th and 16th. Sabour reported 6" of rain on the 14th and Jalpaiguri 5" on the 15th. The spell of heavy rain extended into Assam subsequently and continued there till the 20th. The monsoon finally withdrew from northeast India by the 21st.

The seasonal low pressure area got itself established over the Bay of Bengal by the 18th and ushered in northeast monsoon conditions simultaneously with the withdrawal of the southwest monsoon. South Tamilnad experienced local rain or thundershowers from the 18th to 20th. Tiruchirapally recorded 4" of rain on the 18th and Nagapattinam 3" on the 19th.



With the arrival of an easterly wave, conditions became unsettled in the southeast and adjoining southwest Bay of Bengal on the 27th morning and by the same evening, a depression formed with its centre near Lat. 10.0°N and Long. 87.0°E . Moving northwestwards, it concentrated rapidly into a cyclonic storm and was centred near Lat. 11.0°N and Long. 86.0°E on the morning of 28th. Continuing to move in a northwesterly direction, it was centred about 250 miles to the southeast of Masulipatnam on the 29th morning and by the evening it was about 100 miles to the southeast of Masulipatnam. Thereafter, moving in a westnorthwesterly direction and weakening at the same time, it crossed coast between Masulipatnam and Ongole early on the morning of 30th and lay as a deep depression with its centre at 0830 hrs. I.S.T. about 50 miles to the north of Ongole. Weakening further into a depression by the evening, it lay as a shallow low pressure area over Hyderabad on the last day of the month. Under the influence of the storm, fairly widespread rain was reported from coastal Andhradesa between the 29th and the 31st. A few very heavy falls were reported on the 30th Nellore recording 6". Widespread and locally heavy to very heavy rain also occurred in Orissa on the 30th, when Gopalpur and Puri recorded 7" each and Chandbali 5". The storm was also responsible for an incursion of moist air into the central parts of the country and Gangetic West Bengal. Fairly widespread rain occurred in Gangetic West Bengal on the 30th and 31st and in Chota Nagpur and west Madhya Pradesh on the 31st.

The rainfall during the month was in large excess in the Bay Islands, northeast India outside Assam and Chota Nagpur, in Uttar Pradesh, Jammu and Kashmir, Rajasthan, Madhya Bharat, Vindhya Pradesh, Gujarat, Saurashtra and Kutch, the Konkan, Deccan (Desh), south Hyderabad, coastal Andhradesa, Rayalaseema and Mysore, in moderate excess in Chota Nagpur, north Hyderabad, and Malabar and south Kanara and in slight excess in Assam, the Punjab (I) and Travancore-Cochin. It was normal in Tamilnad and in slight defect in Madhya Pradesh.

The mean maximum temperature was normal in the Bay Islands, north-east India outside Orissa and Chota Nagpur, in east Madhya Pradesh, the Konkan, Malabar and south Kanara and Travancore-Cochin and below normal over the remaining parts of the country.

The mean minimum temperature was above normal in Chota Nagpur, Uttar Pradesh, the Punjab (I), Jammu and Kashmir, Vindhya Pradesh and west Madhya Pradesh and normal elsewhere in the country.

The mean relative humidity in the morning was normal in the Bay Islands, Assam, West Bengal, Jammu and Kashmir, the Konkan, Tamilnad, Malabar and south Kanara and Travancore-Cochin and above normal over the rest of the country.

The mean cloud amount in the morning was normal in the Bay Islands, Assam, the Konkan, Malabar and south Kanara, Mysore and Travancore-Cochin and in excess over the other parts of the country.

Table I contains the divisional and sub-divisional means of rainfall, temperature, humidity and cloud amount for the 13 chief political divisions and the 28 sub-divisions. The stations whose observations are used for preparing these means are given in the subsequent tables.

The highest maximum temperature given for any station in the accompanying tables is that recorded within the 24 hours ending at 0830 hrs. I. S. T. of the date noted in the succeeding column. Similarly the heaviest fall in 24 hours for any station denotes the amount recorded during the 24 hours ending at 0830 hrs. I. S. T. of the date given in the succeeding column.

TABLE I—DIVISIONAL AND SUB-DIVISIONAL MEANS—OCTOBER, 1956.

1	Rainfall (inches).	Percentage of normal.	Mean maximum temperature °F.	Mean minimum temperature °F.	Relative humidity. %		Cloud.		1	Rainfall (inches).	Percentage of normal.	Mean maximum temperature °F.	Mean minimum temperature °F.	Relative humidity. %		Cloud.	
					0830 hrs. I.S.T.	1730 hrs. I.S.T.	0830 hrs. I.S.T.	1730 hrs. I.S.T.						0830 hrs. I.S.T.	1730 hrs. I.S.T.	0830 hrs. I.S.T.	1730 hrs. I.S.T.
					6	7	8	9						6	7	8	9
Division									Division—contd.								
Assam (Including Manipur & Tripura).	5.69 +0.87	118 ..	86.6 +0.9	71.5 +0.5	85 +1	82 ..	4.3 +0.1	3.7 ..	8. Madhya Bharat & Vindhya Pradesh.	5.10 +3.80	392 ..	85.9 -3.5	65.9 +2.0	75 +13	59 ..	2.8 +1.2	3.4 ..
West Bengal	7.01 +2.52	156 ..	86.9 -1.6	74.1 +1.0	81 +4	79 ..	3.8 +1.0	4.0 ..	9. Madhya Pradesh .	1.97 -0.32	86 ..	86.7 -1.9	68.5 +2.0	75 +9	61 ..	3.5 +1.2	4.1 ..
Orissa	13.35 +7.46	227 ..	86.1 -2.5	74.4 +0.5	84 +6	80 ..	5.0 +1.9	5.0 ..	10. Bombay (Including Saurashtra & Kutch).	5.66 +3.14	225 ..	87.7 -2.8	70.2 -0.1	79 +6	61 ..	3.5 +0.9	3.7 ..
Bihar	5.16 +2.54	197 ..	85.8 -1.8	72.2 +2.1	81 +9	78 ..	4.0 +1.7	4.2 ..	11. Hyderabad .	4.19 +1.83	178 ..	85.6 -3.1	69.7 +0.6	78 +10	60 ..	4.9 +1.9	5.4 ..
Uttar Pradesh	8.32 +6.99	626 ..	87.0 -4.9	69.0 +3.5	81 +15	71 ..	2.6 +1.6	3.1 ..	12. Madras (Including Travancore-Cochin).	11.31 +3.23	140 ..	86.1 -2.6	74.5 -0.1	83 +4	76 ..	5.8 +1.3	6.4 ..
Punjab (I) (Including PEPSU & Delhi).	5.79 +5.31	121 ..	86.3 -6.4	66.1 +2.6	79 +21	60 ..	2.3 +1.5	1.9 ..	13. Mysore .	11.55 +5.79	201 ..	80.7 -3.0	67.0 +0.2	88 +9	70 ..	+5.8 0.9	6.3 ..
Rajasthan	4.73 +4.39	1391 ..	88.4 -5.9	65.8 +0.4	71 +20	44 ..	1.9 +1.0	1.8 ..	Mean of India .	6.49 +3.46	214 ..	86.6 -3.2	69.8 +1.1	79 +10	63 ..	3.7 +1.3	4.0 ..
Sub-Division									Sub-Division—contd.								
Bay Islands	20.11 +7.60	161 ..	84.4 +0.5	74.4 +0.6	83 +2	88 ..	5.9 +0.7	5.5 ..	15. Madhya Pradesh, East.	2.83 -0.37	88 ..	85.0 -1.6	69.0 +1.8	80 +6	69 ..	3.8 +1.1	4.5 ..
Assam (Including Manipur & Tripura).	5.69 +0.87	118 ..	86.6 +0.9	71.5 +0.5	85 +1	82 ..	4.3 +0.1	3.7 ..	16. Madhya Pradesh, West.	1.44 -0.29	83 ..	87.7 -2.1	68.2 +2.2	72 +10	53 ..	3.3 +1.3	3.8 ..
West Bengal	7.01 +2.52	156 ..	86.9 -1.6	74.1 +1.0	81 +4	79 ..	3.8 +1.0	4.0 ..	17. Gujarat .	3.79 +2.53	301 ..	90.4 -4.5	69.1 +0.5	75 +7	55 ..	2.3 +0.5	2.5 ..
Orissa	13.35 +7.46	227 ..	86.1 -2.5	74.4 +0.5	84 +6	80 ..	5.0 +1.9	5.0 ..	18. Saurashtra and Kutch.	3.19 +2.69	638 ..	90.4 -3.5	69.9 -1.1	76 +7	53 ..	2.1 +0.4	2.2 ..
Chota Nagpur	3.92 +1.17	143 ..	84.3 -2.5	70.8 +2.3	81 +9	76 ..	4.3 +1.7	4.5 ..	19. Konkan .	6.57 +3.18	194 ..	86.8 -1.4	74.1 -0.1	82 +1	75 ..	4.4 +0.7	4.5 ..
Bihar	5.78 +3.23	227 ..	87.0 -1.2	73.1 +1.9	81 +9	79 ..	3.7 +1.6	4.0 ..	20. Deccan (Desh) .	7.08 +3.62	205 ..	85.5 -2.7	67.6 +0.3	79 +9	60 ..	4.7 +1.5	5.0 ..
Uttar Pradesh, East.	8.00 +6.25	457 ..	86.7 -4.2	70.7 +3.9	81 +12	73 ..	2.9 +1.7	3.5 ..	21. Hyderabad, North	2.77 +0.75	137 ..	85.5 -2.7	68.2 0	76 +10	58 ..	4.3 +1.4	5.1 ..
Uttar Pradesh, West.	8.63 +7.74	970 ..	87.3 -5.7	67.3 +3.2	80 +18	69 ..	2.3 +1.6	2.7 ..	22. Hyderabad, South	5.60 +2.90	207 ..	85.7 -3.5	70.8 +1.1	80 +10	63 ..	5.3 +2.3	5.7 ..
Punjab (I) (Including PEPSU and Delhi)	5.79 +5.31	121 ..	86.3 -6.1	66.1 +2.6	79 +21	60 ..	2.3 +1.5	1.9 ..	23. Coastal Andhra- desa	15.73 +7.83	199 ..	86.2 -3.3	75.2 -0.3	+84 +6	77 ..	6.1 +1.8	5.9 ..
Jammu & Kashmir.	8.47 +7.16	647 ..	70.3 -3.1	48.2 +2.0	66 +5	49 ..	2.5 +0.9	3.1 ..	24. Rayalaseema .	7.88 +3.88	197 ..	87.3 -4.0	72.9 -0.3	82 +9	69 ..	5.4 +1.5	6.1 ..
Rajasthan, West	1.78 +1.62	1113 ..	90.9 -5.2	67.1 +1.7	68 +17	37 ..	1.3 +0.7	1.4 ..	25. Tamilnad .	8.79 +0.40	105 ..	86.7 -2.4	74.3 0	82 +3	75 ..	5.7 +1.1	6.8 ..
Rajasthan, East (Including Ajmer).	7.68 +7.15	1449 ..	86.3 -6.4	64.8 -0.6	74 +22	51 ..	2.3 +1.3	2.1 ..	26. Malabar and South Kanara.	13.77 +4.56	150 ..	84.7 -1.4	74.5 -0.3	89 +5	81 ..	5.9 +0.9	6.4 ..
Madhya Bharat	5.89 +4.91	601 ..	85.6 -4.3	65.1 +1.6	72 +14	54 ..	3.0 +1.7	3.4 ..	27. Mysore .	11.55 +5.79	201 ..	80.7 -3.0	67.0 +0.2	88 +9	70 ..	5.8 +0.9	6.3 ..
Vindhya Pradesh	3.78 +1.94	205 ..	86.6 -2.1	67.2 +2.6	79 +11	66 ..	2.4 +0.4	3.5 ..	28. Travancore-Cochin	13.37 +1.31	111 ..	83.7 -1.4	74.9 +0.1	85 +1	81 ..	6.1 +0.9	6.5 ..

Note.—The entries in the second line for each division and sub-division indicate departures from normal.

Errata to M.W.R. October 1956

<u>Page</u>	<u>Station</u>	<u>Ht.</u>	<u>Hour</u>	<u>Column</u>	<u>For</u>	<u>Read</u>
452	Maya Bander	-	-	5	9, 1, 28	1, 9, 28
"	Kondul	-	-	14	44	14
"	Digboi	-	-	9	0, 21	20, 21
"	Malda	-	-	19	-0.1	+0.1
"	Gopalpur	-	-	13	7	7.21
"	Angul	-	-	5	2, 3, 16	2, 3, 15
453	Darbhanga	-	-	6	73.7	73.6
"	"	-	-	12	+0.17	+0.7
"	Chapra	-	-	13	1.75	0.75
"	Gaya	-	-	5	2,	2, 3
"	Lucknow (Amausi aerodrome)	-	-	5	blank	4
454	Jodhpur	-	-	28	1	0
"	Alwar	-	-	9	99	19
455	Jabalpur	-	-	17	3	3.9
"	Bombay (Colaba)	-	-	28	3	0
"	Alibag	-	-	19	-0.7	+0.7
"	Miraj	-	-	7	-1.1	+0.1
456	Mahbubnagar	-	-	14	blank	0
"	Hyderabad (Begumpet aerodrome)	-	-	28	2	0
"	Coimbatore	-	-	16	+1.7	-1.7
"	Bellary	-	-	12	-2.97	+2.97
457	Nainital	-	-	28	blank	0
458	Ginabaha	-	-	6	66.1	68.1

Table III

459	Long Island	-	0830	4	1011.0	1011.8
460	Krishnagar	-	0830	23	5	2
462	Heading	-	-	7,8,9	and temperature	Mean temperature
464	Heading	-	-	15	Mean speed	Mean wind speed
"	Footnote	-	-	-	miles per hour	miles per hour
"	"	-	-	-	Blank	(a)= Mean of 30 days
"	"	-	-	-	Blank	(R)= Register not received
"	"	-	-	-	Blank	(‡)= Observations for 29 days
"	Dras	-	-	1	*	(R)
"	Sri Ganganagar	-	1730	8	7	70.0
466	Indore	-	2330	15	3.7	3.7(d)
"	"	-	2330	22	4	2
"	Umaria	-	1730	15	1.8	0.8
467	Deesa	-	0830	28	0	1
468	Bhuj (P.B.O.)	-	2330	18	0	10
"	Veraval	-	2330	19	1	10
"	Bombay (Santacruz)	-	0830	4	blank	1007.7
469	Harnai	-	1730	7	82.2	82.0
"	Ratnagiri	-	0830	6	-0.4	-1.4

Page	Station	Ht.	Hour	Column	For	Read
<u>Table III (contd.)</u>						
469	Deolali	-	0830	7	72.	72.3
"	Ahmednagar	-	0830	7	7.1	71.9
"	Kolhapur	-	0530	3	187	1870
471	Masulipatnam	-	1730	9	76.4	73.3
474	Coonoor	-	0830	4	150.99	1505.9

Table IV

477	Agartala	0.15	1430	D	326	325
"	Ambala	0.9	1430	D	33	343
480	Bhuj	6.0	0730	D	344	343
"	Chikalathana	7.2	0730	V	3.0	9.0
481	Dum Dum	3.0	2030	V	12.7	12.0
484	Jaipur	1.5	0730	V	9.6	8.6
"	"	2.1	0730	V	12.6	9.6
"	"	3.0	0730	V	16.0	12.6
486	New Delhi	7.2	0830*	V	29.1	29.2
"	"	9.0	1430	v	29.3	39.3

Table V

491	Ahmedabad	14.1	0730	-	5	3
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Table VI

496	Allahabad	600 mb.	-	Mean	275.5	275.4
"	Madras	1006 mb.	-	125	202.7	201.7

TABLE II—SUMMARY OF OBSERVATIONS OF TEMPERATURE, RAINFALL AND WEATHER—OCTOBER, 1956.

Division and station.	Air temperature in °F.							Rainfall in inches.					No. of rainy days (0.10" or more).		Wind speed, miles per hour.			Weather phenomena—No. of days								
	Mean maximum.	Departure from normal.	Highest.	Date.	Mean minimum.	Departure from normal.	Lowest.	Date.	Total fall during 0830-1730 hours.	Total fall in 24 hours.	Departure from normal.	Heaviest fall in 24 hours.	Date.	Total in the month.	Departure from normal.	Mean between 0830-1730 hours.	Mean 24 hours.	Departure from normal.	Precipitation (or more).	Snow or sleet.	Hail.	Thunder heard.	Fog.	Dust-storm.	Ground frost.	Gale.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
HYDROMETEOROLOGICAL OBSERVATORIES—contd.																										
Damodar Catchment																										
<i>—contd.</i>																										
Hazaribagh	82.1	...	89	8	65.5	...	61	9 days	1.34	4.49	...	2.12	4	6	...	(l)	(k)	...	10	0	0	2	0	0	0	0
Ramgarh	87.1	...	100	12	69.2	...	62	25	2.27	7.13	...	2.72	16	8	...	2.1	1.1	...	13	0	0	7	2	0	0	0
Panchet Hills	87.1	...	93	2,3	75.0	...	68	5 days	3.12	5.36	...	1.45	31	11	...	5.2	3.6	...	13	0	0	8	0	0	0	0
Asansol . . . . .	...	...	...	...	...	...	...	...	...	6.47	...	2.45	16	9	...	...	...	...	14	...	...	...	...	...	...	...
Dhanwar . . . . .	...	...	...	...	...	...	...	...	...	5.32	...	1.26	14	7	...	...	...	...	9	...	...	...	...	...	...	...
Dumri . . . . .	...	...	...	...	...	...	...	...	...	3.60	...	1.65	31	8	...	...	...	...	10	...	...	...	...	...	...	...
Bishungarh . . . . .	...	...	...	...	...	...	...	...	...	5.77	...	1.56	31	8	...	...	...	...	10	...	...	...	...	...	...	...
Palganj . . . . .	...	...	...	...	...	...	...	...	...	6.25	...	2.05	31	8	...	...	...	...	12	...	...	...	...	...	...	...
Chandwa . . . . .	...	...	...	...	...	...	...	...	...	6.77	...	2.38	14	9	...	...	...	...	9	...	...	...	...	...	...	...
Mahanadi Catchment																										
Baramul	86.3	...	90	4 days	71.6	...	66	20,28	6.71	10.62	...	3.99	13	13	...	1.3	0.9	...	17	0	0	9	1	0	0	0
Hirakud	87.6	...	91	3,12	73.4	...	69	17	3.28	7.29	...	3.60	13	10	...	2.8	3.0	...	13	0	0	3	0	0	0	0
Sonepur	88.3	...	91	4	71.9	...	67	19,20,21	...	0.73	...	0.72	28	1	...	...	...	...	2	...	...	...	...	...	...	...
Ginabhar	87.1	...	92	3	66.1	...	59	19	...	3.78	...	1.13	9	11	...	...	...	...	11	...	...	...	...	...	...	...
Narbada Catchment																										
Punasa	89.9	...	93	5	66.5	...	57	15,27	0.54	1.10	...	0.33	9	4	...	4.1	2.7	...	6	0	0	5	0	0	0	0
Bagra Tawa	88.9	...	93	13	66.8	...	57	26	2.29	1.54	...	0.67	7	3	...	3.7	2.0	...	7	0	0	4	0	0	0	0
Thikri	90.7	...	94	4	67.7	...	60	19,21,27	...	2.59	...	1.13	8	3	...	...	...	...	4	0	0	2	0	0	0	0
Tapti Catchment																										
Nandurbar	91.6	...	94	4 days	71.6	...	65	16	...	2.22	...	0.77	10	6	...	...	...	...	7	...	...	...	...	...	...	...
Sabarmati Catchment																										
Jhadol	83.9	...	94	27	59.0	...	49	31	...	5.58	...	2.20	8	7	...	...	...	...	7	...	...	...	...	...	...	...
Dharoi	90.3	...	93	3	67.2	...	61	19	0	6.85	...	1.53	7	7	...	...	...	...	7	...	...	...	...	...	...	...

(k) Mean of 20 days.

(l) Mean of 19 days.

TABLE III—SUMMARY OF OBSERVATIONS AT FIXED HOURS—OCTOBER, 1956

Division and station	Hour of observation L.S.T.	Height of barometer station above mean sea level in feet	Mean pressure in millibars			Mean temperature in °F			Vapour pressure in inbs.	Relative humidity %	Departure from normal	Cloud amount (Oktas).		Wind speed (m.p.h.)				No. of observations									
			At mean sea level or height in g. m. of nearest standard isobaric level	At station level	Departure from normal	Dry bulb	Wet bulb	Dew point				Mean amount	Departure from normal	Mean wind speed miles per hour	39 or more	15 to 38	1 to 12	Wind direction									
																		N	NE	E	SE	S	SW	W	NW	Calm	Variable
			15	16	17	18	19	20				21	22	23	24	25	26	27	28								
Madhya Pradesh, East—contd. Chanda—contd.	1730	654	1006.6	985.0	...	82.5	75.0	71.5	26.3	70	...	4.5	...	1.8	0	0	16	0	2	7	3	2	2	0	0	15	0
Sironcha	0830	405	1010.6	996.6	...	77.8	73.7	71.8	26.8	82	...	4.4	...	2.6	0	0	26	6	5	5	3	2	0	1	4	5	0
Jagdalpur (P. B. O.)	0530	1,813	1009.2	947.2	...	68.7	67.7	66.8	22.8	94	...	3.0	...	0.5	0	0	5	0	3	1	1	0	0	0	0	26	0
Madhya Pradesh, West Buldhana	0830	2,153	1010.2	938.5	...	73.3	66.9	63.1	20.3	71	...	3.1	...	2.4	0	0	27	0	10	1	3	0	1	0	12	4	0
Akola	0830	923	1010.5	978.7	-1.4	77.1	69.8	66.0	21.6	69	+8	4.3	+1.9	3.6	0	0	29	1	3	11	4	2	4	2	2	2	0
Akola (Aerodrome)	0530	1,015	1008.8	973.5	...	69.1	66.4	64.5	21.0	85	...	2.7	...	1.7	0	0	19	1	0	7	4	1	2	4	0	12	0
Amravati	0830	1,213	1010.9	969.4	-0.9	76.0	69.4	65.2	21.6	70	+12	3.5	+1.1	4.2	0	0	28	0	12	10	2	2	1	1	0	3	0
Yectmal	0830	1,481	1010.2	959.9	...	75.9	70.1	66.5	22.5	73	...	3.3	...	2.0	0	0	15	2	4	4	1	2	2	0	0	16	0
Khandwa	0830	1,044	1010.9	975.1	-1.0	75.8	69.0	64.3	21.1	68	+6	3.3	+1.3	4.1	0	2	24	3	8	3	4	4	1	3	0	5	0
Hoshangabad	0830	992	1011.4	977.2	-1.3	74.7	69.2	66.1	21.9	74	+6	2.7	+0.9	1.9	0	0	20	3	4	7	2	3	0	1	0	11	0
Sagar	0830	1,808	1011.0	949.6	-0.8	74.1	67.9	64.2	20.7	73	+18	2.3	+0.5	4.2	0	0	29	0	5	13	5	1	2	3	0	2	0
Jabalpur	0530	1,289	1009.9	965.3	...	68.6	67.2	66.3	22.1	93	...	2.5	...	0.8	0	0	8	0	3	0	5	0	0	0	0	23	0
Mandla	0830	1,452	1011.5	961.8	...	73.3	69.5	67.3	22.9	81	...	3.5	...	1.5	0	0	15	4	3	3	3	1	0	1	0	16	0
Besni	0830	2,027	1010.7	942.3	-0.9	74.7	68.2	64.6	20.9	71	+10	4.2	+2.3	2.1	0	0	26	2	4	7	8	3	1	0	1	5	0
Chhindwara	0830	2,248	1011.4	935.3	...	70.7	66.6	64.0	20.6	80	...	3.6	...	2.4	0	0	21	3	5	5	4	2	0	1	1	10	0
Betul	0830	2,144	1011.0	938.6	...	73.1	67.7	64.5	21.0	75	...	3.5	...	3.5	0	0	29	12	8	1	3	2	1	1	1	2	0
Nagpur	0230	1,018	1008.8	973.5	...	71.2	68.5	66.9	22.6	87	...	3.3	...	3.1	0	0	24	8	4	3	1	1	0	0	7	7	0
Bijavat Deesa	0830	447	1011.4	995.7	-0.8	76.3	66.5	63.5	20.2	65	...	1.9	...	3.4	0	0	28	6	14	4	3	0	0	0	0	3	0
Serat	0530	39	1008.3	1006.6	...	73.8	69.7	67.2	23.1	80	...	2.6	...	1.6	0	0	14	0	9	1	2	1	1	0	0	17	0
Ahmedabad	0830	182	1010.2	1008.8	-1.4	78.2	71.6	69.4	23.3	74	+6	2.9	+0.7	1.6	0	0	19	1	10	3	4	0	1	0	0	12	0
Dahad	0830	1,093	1011.5	973.6	...	72.8	67.6	64.1	20.7	75	+4	1.9	-0.2	3.9	0	0	27	4	10	7	3	1	2	0	0	4	0

TABLE III—SUMMARY OF OBSERVATIONS AT FIXED HOURS—OCTOBER, 1956

Division and station	Hour of observation I. S. T.	Height of barometer in feet above mean sea level	Mean pressure in millibars			Mean temperature in °F			Vapour pressure in mbs	Relative humidity %	Departure from normal	Cloud amount (Oktas)		Mean wind speed, miles per hour	Wind speed (m.p.h.)			No. of observations									
			At station level	Departure from normal	Dry bulb	Wet bulb	Dew point	Mean amount				Departure from normal	Wind direction			N	NE	E	SE	S	SW	W	NW	Calm	Variable		
													Wind direction														
			At mean sea level or height in g. m. of nearest standard barometric level	At station level	Departure from normal	Dry bulb	Wet bulb	Dew point				Mean amount	Departure from normal		9 or more	10 to 12	13 to 15	16	17	18	19	20	21	22	23	24	25	26	27	28
<i>[Table content follows with multiple rows of data for various stations like Komkan, Alibag, Ratnagiri, etc.]</i>																											

MONTHLY MEANS OF UPPER WINDS OCTOBER 1956

During the month, observations of velocity and direction of upper winds were made at 52 stations in India. Out of these, at 42 stations all the observations were taken by means of pilot balloons and at 10 stations some observations were made by means of pilot balloons while the other observations by the radiowind method. Particulars of the stations, their co-ordinates and the approximate times of the regular pilot balloon and rawin ascents at each station are given in the table. All radiowind ascents have been indicated by means of an asterisk (*) against the scheduled hours.

Data from ascents made at the scheduled time or within two hours on either side of the scheduled times of regular observations have been used for averaging.

Data upto 9.0 km. a. m. s. l. are given under Table IV and data above 9.0 km. a. m. s. l. under Table V.

In Tables IV and V :

n—represents the number of observations,

V—represents the mean wind speed in knots irrespective of direction,

v—represents the resultant mean velocity in knots,

D—represents the direction of the resultant mean wind in degrees East of North.

Mean and resultant winds are given in this publication for the following heights:—

Surface, 0.15 km. a. g., 0.3, 0.6, 0.9, 1.5, 2.1, 3.0, 4.5, 5.4, 6.0, 7.2, 9.0, 10.5, 12.0, 14.1, 16.2, 18.0, 20.0, 23.0, 26.0, 30.0 and 35.0 km. a. m. s. l. Of these the levels 1.5, 3.0, 5.4, 7.2, 9.0, 12.0, 14.1 and 16.2 km. a. m. s. l. are considered as the best approximations to the standard pressure levels 850, 700, 500, 400, 300, 200, 150, and 100 mb. respectively.

Particulars of Pilot Balloon and Rawin Stations in India

Station	Lat. N.	Long. E.	Height of Anemometer head a. m. s. l. in metres	Date of opening	Approximate times of flight (IST)		
Agartala	23°53'	91°15'	17	28th November 1951	0130	0730	1430
Ahmedabad	23°04'	72°38'	61	19th May 1928	0130	0730	1430
Amausi	26°45'	80°53'	126	20th November 1950	0130	0730	1430
Ambala	30°23'	76°46'	282	1st April 1941	0130	0730	1430
Anantapur	14°41'	77°37'	364	12th February 1946		0730	1430
Asansol	23°41'	86°59'	126	29th May 1942	0130	0730	1430
Baghdogra	26°38'	88°19'	138	7th June 1953		0730	1430
Bairagarh	23°17'	77°21'	524	26th February 1943	0130	0730	1430
Bamrauli	25°27'	81°44'	103	28th February 1930	0130	0830*	1430 2030*
Bangalore	12°58'	77°35'	936	19th May 1915	0130	0730	1430
Barcilly	28°22'	79°24'	180	12th January 1943		0730	1430
Begumpet	17°27'	78°28'	542	1st September 1929	0130	0730	1430
Bhagalpur	25°14'	86°57'	60	19th May 1950		0730	1430
Bhubaneshwar	20°15'	85°50'	45	5th December 1942	0130	0730	1430
Bhuj	23°15'	69°48'	111	14th September 1937	0130	0730	1430
Bikaner	28°00'	73°18'	228	8th October 1946	0130	0730	1430
Chikalhana	19°51'	75°24'	583	7th October 1951	0130	0730	1430
Cochin†	09°58'	76°14'	3	16th March 1942	0130	0730	1430
Darjeeling	27°03'	88°16'	2115	21st May 1956		0730	1430
Dum Dum	22°39'	88°27'	11	14th May 1921	0130	0830*	1430 2030*
Gadag	15°25'	75°38'	650	3rd May 1943	0130	0730	1430
Gauhati	26°05'	91°43'	55	12th March 1955	0130	0830*	1430 2030*
Gaya	24°45'	84°57'	113	19th March 1937	0130	0730	1430
Gopalpur	19°16'	84°53'	24	15th February 1946	0130	0730	1430
Gorakhpur	26°45'	83°22'	83	5th January 1943		0730	1430
Gwalior	26°14'	78°15'	211	7th May 1938	0130	0730	1430
Imphal	24°51'	93°58'	798	8th March 1952		0730	1430
Jabalpur	23°10'	79°57'	402	30th July 1928	0130	0730	1430
Jagdalpur	19°05'	82°02'	561	25th March 1948	0130	0730	1430
Jaipur	26°49'	75°48'	387	6th June 1953		0730	1430
Jamshedpur	22°49'	86°11'	144	23rd July 1942		0730	1430
Jharsuguda	21°55'	84°05'	234	1st May 1944	0130	0730	1430
Jodhpur	26°18'	73°01'	228	15th October 1934	0120	0830*	1430 2030*
Madras	13°00'	80°11'	29	8th April 1926	0130	0830*	1430 2030*
Mangalore	12°52'	74°51'	40	4th June 1928	0130	0730	1430
Masulipatnam	16°11'	81°08'	9	8th April 1942	0130	0730	1430
Minicoy	08°18'	73°00'	14	14th April 1941	0130	0730	1430
Mohanbari	27°29'	59°01'	110	1st June 1948	0130	0730	1430
Mussoorie	30°27'	78°05'	2050	3rd November 1955		0730	1430
Nagpur	21°09'	79°07'	316	23rd April 1943	0130	0830*	1430 2030*
New Delhi	28°35'	77°12'	227	20th October 1936	0130	0830*	1430 2030*
Poona	18°32'	73°51'	560	5th January 1925	0130	0730	1430
Port Blair	11°40'	92°43'	92	29th October 1945	0130	0730	1430 2030*
Raipur	21°14'	81°39'	308	15th July 1944	0130	0730	1430
Santacruz	19°05'	72°53'	12	14th May 1933	0130	0830*	1430 2030*
Tezpur	26°37'	92°47'	78	12th August 1932	0130	0730	1430
Tiruchirapalli	10°46'	78°43'	95	22nd June 1936	0130	0730	1430
Trivandrum	08°29'	76°57'	72	8th December 1928	0130	0730	1430 2030*
Udaipur	24°35'	73°42'	587	24th June 1947	0130	0730	1430
Vengurla	15°52'	73°38'	8	22nd November 1941	0130	0730	1430
Vcraval	20°54'	70°22'	16	13th October 1941	0130	0730	1430
Visakhapatnam	17°43'	83°14'	9	24th September 1928	0130	0730	1430

* Rawin ascents.

† Naval Meteorological Office.

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

October 1956

Station	AGARTALA												AHMEDABAD																			
	0130				0730				1430				0130				0730				1430											
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D				
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	1.4	0.8	038	31	1.5	0.7	106	31	3.1	1.3	300	31	3.5	2.7	041	31	3.8	3.4	045	31	4.6	2.0	043								
0.15 a. g. . .	29	6.1	1.3	028	30	5.4	2.9	099	29	4.8	2.4	326	30	11.7	8.3	048	30	13.1	11.1	061	30	6.0	3.8	046								
0.3 a. m. a. l. . .	29	5.5	0.3	345	30	5.8	2.9	092	29	5.0	1.5	340	30	11.0	7.6	049	30	14.0	10.6	064	30	6.2	3.7	036								
0.6 " . . .	29	6.1	1.4	258	30	5.8	2.5	082	29	5.0	0.4	096	30	9.9	7.5	053	30	11.9	8.4	076	31	6.5	4.3	044								
0.9 " . . .	29	6.0	1.8	213	30	6.0	2.1	091	28	5.6	2.0	187	29	10.1	8.4	056	30	10.8	8.2	080	30	6.6	4.6	050								
1.5 " . . .	28	6.6	3.0	205	29	6.6	2.8	140	27	7.3	5.0	199	29	11.9	9.1	055	30	9.7	6.5	080	29	7.4	4.8	054								
2.1 " . . .	26	8.0	4.6	212	28	7.2	3.4	150	24	8.7	5.7	200	27	8.7	4.6	055	29	10.1	6.3	070	26	7.6	3.5	059								
3.0 " . . .	21	10.6	2.0	214	28	9.0	5.4	192	21	10.0	6.6	206	23	8.2	0.9	177	28	10.5	4.1	060	22	9.7	3.7	057								
4.5 " . . .	1	4.0	4.0	110	22	10.2	5.8	230	14	10.3	8.1	257	2	8.5	8.0	213	25	12.8	9.8	036	22	15.6	3.5	027								
5.4 " . . .					18	10.2	6.5	234	11	11.8	8.5	288					21	16.5	6.7	028	22	17.6	4.0	334								
6.0 " . . .					16	10.8	7.2	257	10	13.3	7.9	260					19	15.3	3.3	345	21	15.4	6.6	321								
7.2 " . . .					5	12.8	11.4	250	5	21.8	19.4	252					13	16.4	6.9	314	20	17.0	8.8	281								
9.0 " . . .					1	3.0	3.0	215	1	33.0	33.0	275					9	14.7	8.9	292	14	25.9	20.9	261								

Station	AMAUSI												AMBALA																			
	0130				0730				1430				0130				0730				1430											
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D				
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface. . .	31	2.1	0.6	301	31	3.4	1.1	100	31	4.6	1.3	074	31	3.9	1.6	039	31	2.4	1.0	072	31	3.9	0.8	353								
0.15 a. g. . .	28	8.0	3.3	066	27	9.7	2.1	062	31	6.9	1.3	033	30	10.8	4.5	022	29	9.6	3.4	069	30	7.6	1.1	350								
0.3 a. m. a. l. . .	28	8.3	3.3	074	27	9.5	1.5	064	31	6.7	1.7	048	30	6.1	2.3	039	29	4.5	1.9	076	30	5.1	1.5	3.9								
0.6 " . . .	28	8.1	2.6	083	26	7.1	0.8	089	31	6.9	1.2	090	30	12.5	5.1	013	28	12.1	3.5	053	30	9.0	1.5	044								
0.9 " . . .	28	8.3	1.4	060	25	7.1	1.5	079	31	6.5	1.1	128	28	12.5	5.4	358	27	12.1	3.8	017	28	7.7	2.5	3.3								
1.5 " . . .	28	8.0	0.7	296	25	7.3	1.9	022	28	7.2	1.7	145	28	12.7	4.0	004	25	9.5	5.7	352	26	8.3	4.0	3.7								
2.1 " . . .	27	7.2	0.4	193	24	8.5	2.5	059	22	8.3	3.0	146	25	10.1	5.8	333	25	9.4	4.0	360	26	8.7	3.1	006								
3.0 " . . .	24	8.0	1.1	050	22	8.2	0.9	080	17	6.5	2.8	022	23	10.8	3.3	343	23	9.5	2.4	047	23	11.2	1.4	000								
4.5 " . . .					16	10.8	6.2	280	8	12.9	7.5	342	3	11.0	6.4	240	18	9.8	1.9	249	20	15.1	6.8	307								
5.4 " . . .					10	14.3	8.2	284	5	19.0	12.4	299	1	35.0	35.0	215	17	15.4	7.4	250	19	19.2	12.2	294								
6.0 " . . .					4	20.7	16.5	315	4	25.8	21.8	307					13	21.3	11.3	270	18	23.8	15.6	288								
7.2 " . . .									3	41.4	33.9	314					11	29.9	20.3	269	16	34.8	26.4	273								
9.0 " . . .									1	37.0	37.0	280					2	55.5	44.8	236	8	36.9	30.9	269								

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level.

October 1956

Station	ANANTAPUR								ASANSOL												BAGHDOGR		
	0730				1430				0130				0730				1430				0130		
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface	31	2.2	0.3	346	31	4.8	3.2	038	31	2.6	0.1	222	31	2.7	0.5	087	31	3.5	1.2	107	31	3.1	2.5
0.15 a. g.	30	6.1	0.2	123	30	7.3	4.3	050	29	8.6	0.8	119	27	7.1	1.5	035	29	8.1	2.2	115	26	4.7	2.9
0.3 a. m. s. l.									29	8.8	1.3	140	27	6.8	1.6	046	29	8.3	2.2	120	26	4.6	1.9
0.6 "	30	7.0	0.7	162	30	7.4	4.2	045	29	9.8	2.9	157	26	9.4	2.7	102	29	9.2	0.9	008	27	5.1	1.9
0.9 "	29	8.4	2.0	122	30	7.4	4.1	039	28	9.3	1.9	140	23	9.1	3.3	076	29	9.2	2.1	142	25	6.2	2.0
1.5 "	26	9.5	4.0	068	30	8.9	3.1	041	26	9.0	2.1	159	22	10.2	3.4	072	25	9.8	2.7	164	24	6.3	1.6
2.1 "	23	10.0	3.7	027	28	9.2	2.9	069	24	8.5	2.3	169	21	11.6	3.5	070	24	10.8	2.6	181	19	6.3	2.2
3.0 "	22	10.9	4.6	054	24	9.0	4.6	080	15	9.1	5.0	177	16	11.1	5.7	110	19	9.3	1.1	182	10	8.0	3.0
4.5 "	20	11.5	4.9	108	21	11.1	4.6	115					12	8.8	0.9	085	8	12.2	7.8	210	2	10.0	3.1
5.4 "	17	11.9	3.9	078	20	11.1	6.9	104					9	10.1	1.7	191	5	11.4	6.8	184			
6.0 "	16	11.4	5.4	073	18	12.2	7.7	115					7	9.7	6.4	244	2	10.0	2.2	011			
7.2 "	9	11.4	6.1	097	15	11.3	8.7	109					5	18.0	13.6	237							
9.0 "	7	8.9	5.7	109	7	9.7	8.3	102					1	35.0	35.0	265							
Station	BAGHDOGRA								BAIRAGARH												BAMRAULI		
Time in I. S. T.	0730				1430				0130				0730				1430				0130		
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface	31	2.2	1.2	035	31	3.2	1.0	174	31	2.6	1.5	057	31	2.5	1.8	090	31	4.9	1.5	030	31	1.6	1.2
0.15 a. g.	30	5.1	3.9	048	30	4.8	1.1	191	29	12.2	7.7	072	30	10.7	7.0	101	31	8.3	3.0	063	30	8.0	4.6
0.3 a. m. s. l.	30	5.3	3.9	065	30	4.9	1.7	211													30	7.9	4.6
0.6 "	29	6.0	4.1	073	30	5.2	1.6	197	29	11.8	7.8	072	30	8.8	5.4	093	31	7.8	2.6	059	30	8.8	4.4
0.9 "	28	6.3	4.0	073	29	5.6	1.6	173	29	12.5	6.3	070	29	11.9	6.9	105	30	8.0	2.3	056	30	8.8	3.3
1.5 "	26	7.3	3.3	082	28	6.7	0.6	169	29	9.6	3.0	081	28	12.2	5.7	089	30	8.5	2.5	075	23	8.3	1.6
2.1 "	24	8.7	2.9	089	25	7.1	1.1	035	20	9.0	1.0	089	28	10.8	3.7	069	26	9.3	3.0	067	17	6.8	1.7
3.0 "	21	7.5	0.3	360	23	8.0	3.1	305	23	8.5	2.8	077	26	10.4	1.5	048	22	10.6	2.6	042	12	7.2	0.5
4.5 "	13	8.4	0.3	180	15	14.0	6.3	308	3	9.7	7.0	049	20	13.9	6.6	027	15	15.5	8.2	008	1	15.0	15.0
5.4 "	8	17.5	11.7	292	8	24.0	18.3	285	1	15.0	15.0	245	15	13.3	4.7	043	13	17.6	10.3	012			
6.0 "	6	19.7	14.3	296	7	25.0	18.2	226	1	17.0	17.0	250	14	13.9	1.3	052	11	17.3	8.1	014			
7.2 "	1	25.0	25.0	290	6	36.5	24.2	280					11	12.2	5.8	232	8	22.9	11.0	330			
9.0 "					3	30.7	19.3	326					6	17.5	17.1	254	6	19.2	11.8	317			

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

October 1956

Station	BAMRAULI												BANGALORE											
	0830*				1430				2030*				0130				0730				1430			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	2.4	0.9	118	31	4.2	2.1	027	31	1.9	1.2	079	31	3.2	0.8	239	31	3.3	1.6	264	31	5.4	1.9	323
0.15 a. g.	31	3.8	1.6	103	30	7.4	3.7	029	27	3.1	1.5	065	22	10.5	1.5	136	28	8.9	2.9	308	31	8.1	3.8	342
0.3 a. m. s. l.	31	4.1	1.8	109	30	7.6	3.7	030	27	4.1	2.2	078												
0.6 "	31	5.9	2.5	121	30	6.7	2.9	065	27	6.1	2.5	091												
0.9 "	31	7.3	3.6	128	29	7.4	1.7	078	27	8.3	2.3	092												
1.5 "	30	8.0	2.9	100	29	7.4	2.0	142	27	9.1	1.9	115	19	12.8	0.8	026	24	11.6	3.7	321	29	8.6	3.6	349
2.1 "	29	7.9	2.4	098	24	7.2	1.6	077	26	8.8	1.6	154	14	9.4	4.3	012	21	8.9	5.7	011	23	9.5	4.1	019
3.0 "	28	8.7	2.2	142	21	7.0	3.1	040	26	8.6	2.0	090	7	8.4	6.6	009	19	7.6	2.7	026	11	10.1	2.2	343
4.5 "	23	12.3	1.1	150	13	12.7	8.1	341	26	11.5	1.2	300	3	12.3	8.2	170	14	10.9	2.1	139	2	8.0	7.9	133
5.4 "	21	13.3	3.5	299	10	20.3	16.4	329	23	14.8	5.0	284	2	11.5	4.0	108	12	12.4	7.1	116	2	11.5	10.7	113
6.0 "	16	17.6	5.3	303	11	20.4	15.7	314	23	17.4	8.2	290	1	16.0	16.0	055	9	14.1	9.8	111	2	12.0	8.9	120
7.2 "	14	23.7	10.5	287	11	27.6	19.9	304	23	19.3	11.0	289	1	22.0	22.0	060	8	13.5	13.0	097	1	11.0	11.0	175
9.0 "	11	18.8	7.4	324	5	39.8	37.5	260	16	24.2	17.0	267					6	13.5	13.2	080				

Station	BAREILLY								BEGUMPET								BHAGALPUR							
	0730				1430				0130				0730				1430				0730			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	2.6	1.6	079	31	3.9	0.9	010	31	3.4	2.4	105	31	3.2	1.1	100	31	6.3	3.6	074	31	2.6	1.4	072
0.15 a. g.	29	7.7	1.7	095	27	6.9	1.7	283	30	10.0	5.7	096	30	7.9	3.5	108	30	8.5	5.5	070	26	6.0	3.4	119
0.3 a. m. s. l.	29	7.2	1.8	085	27	6.7	1.8	296													26	6.9	2.2	122
0.6 "	28	9.1	1.7	136	27	6.7	1.9	289	30	6.7	3.9	093	30	6.0	2.4	105	30	8.2	5.0	072	25	7.5	3.1	110
0.9 "	28	9.1	0.9	164	26	6.3	2.4	291	30	11.8	6.1	098	30	10.2	6.0	105	30	9.6	5.8	071	23	7.8	3.6	093
1.5 "	26	8.0	1.5	349	24	6.4	1.7	286	28	12.3	6.3	080	21	10.1	8.7	060	28	10.0	4.5	075	22	8.3	3.2	081
2.1 "	26	7.2	3.4	092	23	6.5	1.8	164	24	10.8	3.9	056	21	9.9	8.1	053	25	10.0	4.1	057	20	9.1	4.5	080
3.0 "	26	7.9	3.7	149	22	6.9	2.7	169	23	9.2	2.8	048	19	11.1	7.9	047	21	10.0	2.0	069	18	9.1	5.8	111
4.5 "	23	14.0	6.8	283	19	15.8	9.4	276	1	6.0	6.0	140	16	13.4	7.5	067	11	11.4	0.7	026	13	9.5	0.8	249
5.4 "	19	20.7	11.1	287	18	20.4	13.3	269					15	11.6	7.8	063	7	16.3	2.1	039	12	11.7	3.9	272
6.0 "	16	19.6	11.2	283	16	23.4	14.4	266					15	10.2	7.3	044	6	16.7	8.5	053	11	13.1	5.8	267
7.2 "	9	19.8	10.8	273	11	31.2	20.4	258					1	5.0	5.0	210	4	14.5	9.0	018	4	11.3	1.5	328
9.0 "	4	25.3	21.2	299	4	40.0	10.7	255					1	4.0	4.0	176	3	15.7	10.7	047	1	19.0	19.0	285

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

October 1956

Station	BHAGALPUR				BHUBANESHWAR								BHUJ											
	1430				0130				0730				1430				0130				0730			
Time in I. S. T.																								
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	3.0	1.2	058	31	2.8	2.1	020	31	5.3	3.3	025	31	8.8	3.4	088	31	0.9	0.6	270	31	0.4	0.1	
0.15 a. g.	28	6.5	2.7	075	27	7.7	4.2	070	28	8.9	6.7	038	27	9.8	4.5	097	31	8.8	6.8	331	31	7.9	3.9	
0.3 a. m. s. l.	28	6.5	2.0	073	27	8.5	4.6	089	28	11.1	7.8	064	27	10.1	5.3	097	31	9.4	6.9	338	31	8.9	5.4	
0.6 "	26	6.6	1.4	076	27	9.6	4.8	096	28	12.3	7.7	076	26	10.7	5.0	100	31	10.7	6.8	004	31	10.4	5.8	
0.9 "	26	6.8	1.4	099	25	9.8	5.0	094	26	13.4	12.9	079	22	10.5	3.7	100	31	10.3	6.5	033	31	9.7	5.7	
1.5 "	25	8.2	3.6	139	24	10.0	5.5	103	26	12.0	7.0	078	15	10.4	3.5	084	31	10.6	8.2	063	29	10.5	6.8	
2.1 "	21	8.4	3.4	153	22	9.7	5.1	116	24	10.1	7.2	124	11	8.5	1.1	196	31	10.5	7.8	053	29	11.5	9.4	
3.0 "	16	9.5	4.9	118	20	10.3	3.9	167	22	10.7	5.3	160	6	10.8	4.8	245	30	11.4	7.5	045	26	10.7	6.1	
4.5 "	12	11.7	3.6	030	4	6.5	5.5	235	9	10.8	3.8	224	1	24.0	24.0	315	9	13.9	2.7	011	22	15.4	7.0	
5.4 "	12	14.2	2.5	353					8	10.3	0.7	267	1	14.0	14.0	280	2	9.0	1.2	156	22	17.1	5.7	
6.0 "	11	16.5	3.9	331					6	9.3	6.1	341									22	18.6	6.4	
7.2 "	1	23.0	23.0	215					3	11.4	10.3	278									18	20.1	11.9	
9.0 "	1	32.0	32.0	225																	5	23.0	20.6	

Station	BHUJ				BIKANER								CHIKALTHANA											
	1430				0130				0730				1430				0130				0730			
Time in I. S. T.																								
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	4.0	2.5	019	31	1.2	0.3	242	31	1.1	0.5	240	31	2.0	0.7	314	31	3.5	1.3	031	31	3.6	2.5	
0.15 a. g.	31	7.3	4.7	018	30	11.5	3.8	112	29	11.8	3.8	200	31	7.3	2.5	336	31	11.5	7.5	059	30	10.2	6.8	
0.3 a. m. s. l.	31	7.4	4.9	018	30	10.3	3.3	114	29	8.7	2.7	191	31	7.1	2.5	347								
0.6 "	31	7.5	4.0	023	30	10.9	3.4	081	28	12.1	0.6	145	31	7.8	3.5	347								
0.9 "	31	7.7	4.1	028	30	9.7	2.7	044	28	9.9	1.7	051	31	7.4	3.6	196	31	13.3	8.2	067	30	12.7	8.7	
1.5 "	28	7.8	4.5	039	29	9.0	3.0	350	27	7.7	1.3	340	30	7.9	3.5	338	31	12.9	7.6	079	29	12.7	8.8	
2.1 "	27	8.4	5.7	050	30	9.5	5.4	352	27	7.6	3.8	347	30	7.6	4.1	335	28	9.6	4.2	098	28	10.8	6.0	
3.0 "	25	10.0	6.2	051	26	13.5	7.8	357	27	12.4	8.0	012	29	10.9	4.6	342	22	9.2	1.7	065	22	8.9	4.3	
4.5 "	23	15.0	6.0	025	1	19.0	19.0	010	23	15.8	9.1	325	26	16.6	7.1	290	5	12.0	4.5	064	19	13.5	8.4	
5.4 "	22	18.1	6.2	351					20	19.8	12.8	280	25	20.8	11.9	291	1	6.0	6.0	320	19	11.9	8.2	
6.0 "	22	18.2	6.8	325					19	24.4	16.5	271	23	25.5	14.2	290					18	12.6	8.3	
7.2 "	15	19.7	9.4	296					9	28.8	22.1	275	15	28.8	23.4	268					12	3.0	3.3	
9.0 "	7	15.6	3.8	224					3	18.3	11.3	303	3	41.7	41.5	266					4	10.3	5.2	

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

October 1956

Station	CHIKALTHANA				COCHIN								DARJEELING											
	1430				0130				0730				1430				0730				1430			
Time in I.S.T.																								
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	5.5	3.0	082	31	1.7	0.4	322	31	1.5	0.5	090	31	6.5	5.8	265	31	0.8	0.5	090	31	0.6	0.3	217
0.15 a. g.	31	9.3	5.1	073	18	3.4	1.7	341	26	3.5	2.5	081	27	6.1	5.6	265	24	4.0	1.9	090	5	2.6	1.3	235
0.3 a. m. s. l.					18	3.8	2.7	320	26	3.6	2.0	320	27	6.3	5.7	277								
0.6 "					18	5.8	4.5	292	26	5.3	3.9	309	27	6.4	6.0	284								
0.9 "	31	8.9	4.6	067	17	5.7	4.7	297	26	3.3	3.0	313	27	6.3	5.3	283								
1.5 "	30	9.5	5.4	076	14	5.9	4.8	304	26	7.3	5.5	303	25	6.1	4.7	298								
2.1 "	28	10.7	5.2	082	7	6.9	5.7	335	25	3.7	2.7	334	22	7.0	4.4	307								
3.0 "	10	11.1	5.1	021	7	8.0	7.2	309	18	7.2	5.5	312	18	8.0	5.1	296	24	6.7	0.7	049	5	3.8	3.3	016
4.5 "	6	14.5	10.7	033	4	9.2	7.3	269	11	7.2	2.4	292	13	7.5	4.2	287	21	13.9	7.9	282	5	15.8	3.6	298
5.4 "	6	13.2	11.5	043	2	6.5	4.5	253	7	7.2	2.7	115	3	9.0	7.6	250	18	17.4	11.6	277	3	23.3	12.4	024
6.0 "	6	16.7	14.5	050	1	11.0	11.0	250	6	8.0	7.7	121	2	4.0	3.8	288	18	18.6	13.1	278	2	18.0	16.9	274
7.2 "	4	21.7	18.7	042													11	21.3	16.0	274	2	30.5	30.5	257
9.0 "																	8	19.1	9.0	296				

Station	DUM DUM								GADAG																			
	0130				0830*				1430				2030*				0130				0730							
Time in I.S.T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	1.3	0.9	069	31	4.4	1.5	093	31	3.4	1.5	089	31	1.8	0.7	079	31	4.7	1.7	230	31	4.2	1.2	233				
0.15 a. g.	31	7.9	2.1	107	31	9.0	3.0	111	30	7.8	2.2	135	31	8.7	2.0	147	29	11.5	3.9	235	30	8.5	0.3	010				
0.3 a. m. s. l.	31	8.6	2.8	135	31	9.5	3.3	111	20	8.1	1.5	152	31	8.9	2.6	146												
0.6 "	31	9.3	2.8	150	31	10.6	4.4	107	20	9.3	2.5	230	31	9.2	3.5	133												
0.9 "	29	9.3	2.7	170	31	11.1	5.3	127	29	10.3	2.2	155	31	9.9	4.0	141	29	11.1	0.7	179	30	9.7	1.5	075				
1.5 "	29	9.1	3.7	165	31	11.5	6.5	140	28	9.8	2.9	165	31	10.0	4.3	160	27	11.4	4.4	075	25	12.3	5.4	073				
2.1 "	24	10.2	6.2	177	30	12.1	7.7	162	23	11.5	8.9	204	31	9.9	4.4	189	17	12.5	7.1	064	19	11.7	5.8	062				
3.0 "	20	13.1	8.7	190	30	13.1	8.8	199	17	10.8	6.3	172	31	12.7	7.7	197	13	12.5	8.3	047	14	11.4	7.1	055				
4.5 "	3	6.7	3.6	238	28	12.2	7.6	212	11	13.1	8.7	205	31	11.7	6.4	206					10	14.9	10.9	063				
5.4 "	2	12.0	7.5	246	25	14.5	9.1	233	6	13.0	11.1	244	31	12.2	5.4	221					6	18.3	11.9	045				
6.0 "	1	7.0	7.0	176	25	14.1	8.8	250	6	14.8	13.1	229	31	12.7	5.8	217					4	14.5	8.1	057				
7.2 "					25	15.7	10.0	244	5	16.0	14.7	236	31	15.9	6.9	241					2	9.5	3.5	067				
9.0 "					23	19.6	13.3	255	3	30.0	28.4	260	25	17.7	12.3	259												

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

October 1956

Station	GADAG				GAUHATI										GAYA								
	1430				0130				0830*				1430				2030*				0130		
Time in I. S. T.																							
H. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface	31	5.8	1.9	065	31	1.8	0.2	080	31	3.5	2.4	048	31	3.6	1.1	027	31	1.8	0.4	108	31	1.4	1.1
0.15 a. g.	30	9.4	2.8	074	30	5.2	0.8	128	30	6.2	4.1	063	27	6.8	1.7	011	30	4.0	1.2	069	27	6.7	2.9
0.3 a. m. s. l.					30	5.5	0.8	123	30	6.8	4.7	068	27	4.2	1.7	023	30	4.8	1.1	082	27	7.1	3.5
0.6 "					29	6.7	0.8	145	30	8.3	4.8	079	26	6.6	1.1	345	30	6.3	0.8	139	27	9.4	3.4
0.9 "	30	9.5	3.0	065	29	8.1	1.2	240	30	9.6	4.4	093	26	6.9	2.3	252	30	7.5	0.8	226	26	9.0	2.1
1.5 "	30	9.0	2.4	055	25	8.4	2.1	262	31	10.6	1.9	150	23	9.2	4.3	255	31	8.5	3.2	229	24	8.0	1.2
2.1 "	20	8.4	5.6	046	21	8.2	2.8	246	31	10.9	3.7	209	23	10.3	5.9	245	31	9.5	5.1	230	20	8.3	0.9
3.0 "	11	12.4	7.0	061	14	10.0	5.3	247	31	12.4	5.7	231	19	12.3	4.1	228	31	11.3	6.1	234	18	11.7	2.9
4.5 "	2	18.0	8.8	006	2	17.0	16.9	257	29	16.4	10.7	240	14	13.7	7.7	255	30	16.9	9.6	243			
5.4 "	1	4.0	4.0	240	1	21.0	21.0	260	27	18.1	13.8	244	12	15.5	9.3	284	30	18.7	12.3	248			
6.0 "	1	2.0	2.0	262					27	19.7	15.2	249	12	18.0	10.4	279	30	20.7	14.5	254			
7.2 "	1	4.0	4.0	240					27	23.1	19.3	250	9	21.4	16.4	279	30	24.0	18.2	255			
9.0 "									27	26.7	21.0	250	7	29.4	22.3	294	29	27.2	21.8	259			

Station	GAYA				GOPALPUR										GORAKHPUR								
	0730				1430				0130				0730				1430				0730		
Time in I. S. T.																							
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface	31	1.8	1.2	137	31	4.0	2.3	064	31	5.7	2.4	340	31	5.3	3.3	340	31	7.1	4.7	089	31	2.1	1.0
0.15 a. g.	30	6.3	4.5	152	30	6.4	3.4	044	29	8.9	3.9	010	31	9.1	4.7	358	30	7.6	6.6	087	28	7.0	2.5
0.3 a. m. s. l.	30	6.8	3.0	153	30	6.7	3.6	043	29	8.5	3.4	062	31	10.7	6.3	050	30	9.6	6.0	087	28	7.9	3.3
0.6 "	30	8.1	2.5	153	30	6.3	3.0	048	29	9.8	4.2	096	30	13.2	6.5	068	30	10.3	4.9	096	28	7.4	2.8
0.9 "	28	3.9	2.9	139	28	7.1	2.1	066	25	10.5	4.5	100	30	10.0	6.6	087	30	11.0	4.3	098	28	7.3	2.8
1.5 "	26	9.0	2.4	087	24	8.5	1.0	092	22	10.0	3.4	100	27	12.3	6.3	105	27	11.9	4.0	118	26	7.7	3.8
2.1 "	25	9.8	4.1	098	18	9.7	4.8	124	19	7.9	2.0	109	24	12.0	6.3	121	24	11.8	5.2	148	26	7.3	3.9
3.0 "	23	12.6	6.2	118	15	8.9	3.7	153	15	9.5	2.1	151	21	11.5	5.9	151	24	12.1	5.3	170	25	7.6	3.4
4.5 "	14	14.3	1.4	175	6	12.3	6.2	318	2	13.5	11.7	262	15	13.3	5.8	174	16	14.0	5.8	213	18	9.7	2.2
5.4 "	8	9.6	2.4	271	5	11.0	4.1	311	1	12.0	12.0	225	12	13.7	2.7	247	12	13.5	7.1	264	12	12.3	5.7
6.0 "	7	10.3	5.0	275	3	10.3	5.1	275	1	13.0	13.0	236	12	12.7	2.4	355	10	11.3	2.8	238	12	15.0	8.2
7.2 "	1	23.0	23.0	051	2	11.0	10.5	278					9	8.3	2.7	124	8	10.0	2.9	298	11	20.9	14.9
9.0 "					2	12.0	11.6	287					6	9.3	5.1	216	4	16.0	7.0	286	5	18.8	14.5

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9·0 Km. above mean sea level

October 1956

Station	GORAKHPUR				GWALIOR								IMPHAL															
	1430				0130				0730				1430				0730				1430							
Time in I. S. T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	3·1	0·4	015	31	1·8	0·5	177	31	2·4	0·9	216	31	3·0	1·2	012	31	0·8	0·5	116	31	3·0	2·4	213				
0·15 a. g.	28	6·6	2·0	028	29	7·7	2·4	110	29	8·2	2·1	186	30	6·7	2·4	017	29	1·8	1·1	137	28	4·5	3·6	222				
0·3 a. m. s. l.	28	6·9	2·2	029	29	6·5	1·3	149	29	6·7	1·7	204	30	5·8	2·0	017												
0·6 "	28	7·2	1·9	045	29	8·0	3·0	080	27	7·9	2·9	119	30	7·1	2·8	013												
0·9 "	28	6·7	1·4	061	29	8·3	2·8	053	25	7·6	2·2	092	30	7·0	2·4	006	29	1·9	1·1	131	28	3·9	2·9	223				
1·5 "	24	6·5	1·2	095	28	8·2	3·3	353	24	8·5	4·2	025	26	7·4	1·5	333	28	4·5	2·9	085	28	4·3	2·6	212				
2·1 "	23	6·1	3·4	141	27	8·5	3·9	349	24	10·2	5·8	018	25	2·5	1·9	340	21	8·5	4·9	123	27	6·3	3·3	228				
3·0 "	19	6·3	4·2	127	23	9·1	1·5	307	21	11·2	3·0	004	19	9·7	4·9	322	15	9·2	5·7	186	25	8·0	5·0	240				
4·5 "	15	10·9	4·2	258					18	17·1	6·6	320	14	17·9	9·4	333	10	11·2	8·0	238	14	13·1	7·5	241				
5·4 "	13	14·6	9·9	286					16	16·1	6·3	307	12	22·1	13·6	313	5	13·6	12·7	281	6	11·5	9·7	296				
6·0 "	11	15·7	11·2	280					15	16·1	7·8	257	9	25·0	15·1	309	4	13·3	12·5	276	6	12·8	11·7	278				
7·2 "	10	21·5	15·9	285					9	22·3	11·6	253	8	34·3	22·7	299	1	20·0	20·0	295	4	17·0	16·4	289				
9·0 "	7	32·0	29·2	263					6	18·3	8·5	292	7	41·6	34·0	263	1	31·0	31·0	295	1	25·0	25·0	300				

Station	JABALPUR								JAGDALPUR																			
	0130				0730				1430				0130				0730				1430							
Time in I. S. T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	1·5	1·1	119	31	1·0	0·8	143	31	3·9	0·9	047	31	1·3	0·7	075	31	0·9	0·5	064	31	2·6	0·9	031				
0·15 a. g.	30	9·7	5·7	088	30	7·7	3·1	109	31	7·1	2·3	053	31	8·0	4·5	078	31	7·1	4·2	067	31	7·1	3·6	058				
0·3 a. m. s. l.																												
0·6 "	30	10·9	6·3	091	30	9·4	4·9	108	31	7·5	2·2	058	31	5·0	2·1	072	31	3·6	1·7	068	31	5·1	2·2	050				
0·9 "	30	13·0	6·7	090	29	13·8	7·2	107	31	7·8	2·1	056	31	10·3	6·6	092	31	10·0	5·9	082	31	7·8	4·1	067				
1·5 "	30	9·6	2·8	067	27	11·6	5·2	074	28	8·6	2·2	062	31	11·6	6·2	105	28	12·9	7·9	097	28	9·6	5·2	078				
2·1 "	28	8·8	0·6	099	27	10·4	4·6	087	24	9·5	1·5	086	28	10·3	3·0	106	26	11·5	5·6	097	22	10·5	4·4	098				
3·0 "	26	10·4	1·4	058	27	11·3	4·6	088	21	11·9	0·6	101	26	10·3	1·4	141	25	11·5	2·2	110	14	13·3	2·1	072				
4·5 "	13	12·2	3·3	359	25	15·1	2·9	082	17	17·0	1·8	359	8	7·7	0·4	228	20	12·9	3·2	079	12	18·1	4·3	039				
5·4 "	5	10·6	2·1	321	24	15·3	3·5	353	16	14·0	2·8	324	5	9·4	1·5	296	17	11·1	1·3	011	8	20·8	13·8	014				
6·0 "	3	8·6	2·9	240	23	16·2	3·8	347	15	15·0	7·1	305	4	10·5	3·6	035	16	12·5	3·6	047	6	15·8	9·3	355				
7·2 "	1	13·0	13·0	241	14	11·7	4·3	261	11	19·1	11·4	291	3	11·7	5·9	014	11	12·5	2·5	044	3	12·3	4·3	272				
9·0 "	1	12·0	12·0	235	11	14·5	9·0	293	6	28·5	18·0	281	1	21·0	21·0	300	10	12·5	0·9	286	3	13·7	7·3	306				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km, above mean sea level

October 1956

Station	JAIPUR								JAMSHEDPUR								JHARSUGUDA						
	0730				1430				0730				1430				0130				0730		
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface	31	2.2	0.8	008	31	3.5	0.9	342	31	2.1	0.6	045	31	3.6	1.6	090	31	4.2	3.1	063	31	3.5	3.0
0.15 a. g.	27	8.1	1.3	308	31	6.6	2.2	343	31	4.5	1.3	065	28	6.7	4.1	103	30	10.8	7.3	094	28	9.1	7.5
0.3 a. m. s. l.									31	4.7	1.3	075	28	6.7	4.0	102	30	9.0	6.4	082	28	7.4	6.0
0.6 "	27	8.5	0.9	274	31	7.1	2.8	345	28	8.2	3.4	095	28	7.5	3.1	104	30	12.5	7.1	113	28	10.8	7.4
0.9 "	27	7.7	1.0	033	30	7.0	2.9	342	26	9.4	4.9	096	27	7.1	2.7	094	30	12.5	5.5	121	27	11.6	7.6
1.5 "	25	9.6	3.4	016	25	7.7	2.9	334	23	10.3	3.9	086	22	8.1	3.3	081	27	10.8	5.1	112	25	13.1	7.4
2.1 "	23	12.6	6.0	007	20	9.3	4.8	325	22	9.7	4.4	082	17	10.3	1.7	099	22	12.0	5.5	120	22	12.4	6.8
3.0 "	23	16.0	6.1	006	15	13.6	9.1	340	20	10.5	3.6	155	15	10.8	5.0	270	16	10.6	1.4	105	22	12.3	6.2
4.5 "	18	16.0	4.2	301	12	21.8	14.6	334	16	12.3	0.5	168	6	10.0	4.0	287	1	10.0	10.0	175	13	13.9	4.4
5.4 "	12	17.6	7.9	293	10	23.4	14.1	333	13	10.8	2.6	220	3	14.7	10.0	313					9	10.0	2.4
6.0 "	8	18.2	11.5	297	8	25.4	15.7	319	8	11.6	4.2	271	3	15.0	9.8	288					8	7.9	5.7
7.2 "	4	13.0	10.9	306	4	25.5	18.8	292	3	8.0	7.9	251	2	18.0	17.1	269					5	11.2	4.5
9.0 "	1	10.0	10.0	0.35					1	30.0	30.0	265	2	29.5	28.6	278					1	26.0	26.0

Station	JHARSUGUDA				JODHPUR												MADRAS						
	1430				0130				0830*				1430				2030*				0130		
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface	31	4.1	2.4	082	31	3.6	2.0	012	31	3.7	2.3	050	31	4.7	1.7	024	28	2.7	0.3	326	31	3.6	2.3
0.15 a. g.	30	7.0	3.4	077	30	13.2	2.9	095	31	6.0	2.4	052	30	7.0	2.1	020	28	4.8	1.3	015	31	8.6	1.0
0.3 a. m. s. l.	30	6.6	3.2	079	30	10.7	2.5	082	31	5.3	2.6	048	30	6.0	1.8	019	28	4.0	1.0	023	31	9.0	0.9
0.6 "	30	6.9	3.8	077	30	12.3	2.7	095	31	7.5	2.8	062	30	7.4	2.6	025	28	7.0	2.9	029	31	9.2	1.1
0.9 "	29	7.5	3.5	086	30	11.1	2.9	079	31	9.6	3.4	078	30	6.8	2.6	010	28	9.8	4.5	032	30	9.0	0.5
1.5 "	27	10.2	4.4	107	30	9.0	5.4	027	31	9.0	3.1	063	31	7.1	3.4	003	28	10.2	6.1	020	29	9.8	1.4
2.1 "	19	11.0	4.8	125	30	8.3	5.2	009	31	8.5	3.6	038	29	7.4	4.8	013	28	10.7	6.7	007	25	11.4	2.1
3.0 "	15	13.1	4.3	082	30	11.5	7.9	005	31	11.1	6.5	044	28	9.5	3.5	334	28	13.1	5.8	347	21	9.2	1.1
4.5 "	8	17.0	6.0	002	5	12.0	11.0	273	29	17.0	3.1	192	26	18.3	7.1	303	25	21.3	10.4	049	4	12.0	1.3
5.4 "	2	4.5	0.5	091	2	15.5	15.4	270	28	22.3	6.9	294	24	21.8	9.7	284	24	23.8	12.1	290	2	11.5	9.2
6.0 "	2	6.0	0.3	216	2	25.5	24.9	267	27	24.0	9.3	288	20	25.1	14.6	286	26	23.3	12.0	285	2	13.5	8.1
7.2 "	2	6.0	4.1	320	2	35.5	38.3	270	26	26.2	1.9	237	18	30.8	20.6	275	22	29.0	18.0	275	1	27.0	27.0
9.0 "	2	12.0	11.7	297					21	27.2	18.8	259	8	41.4	34.2	259	20	30.9	23.4	258	1	25.0	25.0

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

October 1956

Station	MADRAS												MANGALORE											
	0830*				1430				2030*				0130				0730				1430			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	5.6	3.6	299	31	7.5	3.4	076	31	5.5	1.7	110	31	4.8	3.4	096	31	5.0	3.3	090	31	7.7	5.5	258
0.15 a.g.	30	8.0	5.0	313	30	11.3	5.9	080	31	9.1	3.9	073	29	7.4	2.4	099	31	7.5	3.5	096	31	9.2	7.2	259
0.3 a. m. s. l.	30	8.9	5.0	313	30	10.6	6.3	074	31	9.5	3.9	080	29	7.4	1.2	242	31	7.8	1.1	300	31	9.7	7.2	266
0.6 "	30	10.1	5.0	327	30	9.6	5.1	056	31	10.6	4.0	064	29	7.8	2.9	290	29	8.4	2.8	305	31	8.2	5.5	275
0.9 "	30	11.5	5.0	340	30	9.3	4.3	041	31	11.5	4.5	050	29	8.0	2.6	294	27	7.6	3.4	331	28	7.0	3.0	305
1.5 "	30	10.4	3.9	3.8	28	9.1	3.5	010	31	11.6	4.5	018	26	7.3	2.1	010	25	8.5	2.7	035	28	7.6	1.7	354
2.1 "	29	11.1	3.0	348	25	8.9	1.9	345	31	11.3	3.0	019	22	8.6	2.6	054	24	8.0	4.6	049	28	9.1	2.5	042
3.0 "	29	9.7	0.7	164	21	8.4	1.5	299	31	10.6	1.9	060	17	8.5	1.5	108	19	7.5	4.3	050	24	9.6	3.4	036
4.5 "	27	12.0	3.7	130	15	9.6	2.2	194	30	10.4	2.8	083	7	10.3	6.7	063	13	9.6	4.2	050	19	9.9	4.5	071
5.4 "	27	14.2	5.9	124	15	11.4	4.2	150	28	11.7	5.1	101	4	10.5	9.0	099	11	10.9	4.2	076	17	11.1	7.3	085
6.0 "	26	15.3	8.5	118	13	11.8	5.5	133	28	12.3	6.9	101	4	11.3	7.9	105	10	10.0	6.1	054	16	11.6	8.2	067
7.2 "	26	18.4	13.5	110	11	13.8	8.2	088	28	15.0	7.4	108	1	9.0	9.0	085	5	10.8	8.8	077	13	12.4	11.3	081
9.0 "	26	19.5	17.8	102	6	15.3	14.0	090	27	17.5	14.3	106					2	16.5	16.5	100	7	18.8	16.2	093

Station	MASULIPATNAM												MINICOY											
	0130				0730				1430				0130				0730				1430			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	5.0	2.3	070	31	4.8	2.8	028	31	6.2	3.7	101	31	7.2	6.6	283	31	6.5	6.0	285	31	7.7	6.8	286
0.15 a. g.	28	10.3	5.7	089	27	9.0	6.2	040	30	8.0	5.6	095	29	10.4	9.3	282	30	11.0	10.0	285	29	11.2	10.2	292
0.3 a. m. s. l.	28	11.4	6.8	094	26	11.3	6.9	059	30	8.5	5.9	094	29	11.3	10.3	282	30	11.6	10.7	285	29	11.4	10.3	289
0.6 "	28	12.7	8.4	102	26	11.7	6.8	073	29	8.6	5.3	084	28	13.0	11.9	285	30	13.1	12.1	285	29	13.7	12.4	291
0.9 "	28	11.9	7.7	102	24	8.5	5.4	077	27	9.2	6.0	069	28	13.1	12.0	288	30	14.0	12.9	286	28	13.8	12.7	287
1.5 "	26	11.1	7.1	084	24	8.0	5.0	061	21	9.4	6.7	048	28	11.7	10.1	291	27	14.0	12.8	286	27	13.3	12.0	288
2.1 "	23	9.9	5.4	077	22	8.7	6.0	068	21	9.3	6.3	048	25	10.1	8.8	301	24	12.6	11.4	289	21	13.6	11.6	285
3.0 "	16	8.7	4.3	065	20	8.4	4.6	091	17	11.0	2.4	088	20	8.9	7.2	295	16	10.1	7.5	294	19	11.6	9.8	283
4.5 "	3	12.0	5.6	193	15	10.5	6.9	135	12	12.0	2.8	080	7	7.0	2.1	315	16	7.3	1.3	287	15	11.1	5.5	289
5.4 "	2	8.5	0.5	169	13	10.3	7.2	118	11	12.9	4.5	054	3	6.3	4.0	032	14	8.3	2.1	106	13	8.8	3.8	299
6.0 "	2	7.5	0.5	169	12	10.0	5.9	100	5	17.4	10.8	037	2	5.5	3.9	060	10	8.9	5.0	070	11	8.5	2.5	265
7.2 "					4	8.3	8.0	099	6	14.2	8.7	050	1	6.0	6.0	140	7	11.6	9.5	082	3	9.3	6.5	090
9.0 "					3	10.0	9.9	097	1	24.0	24.0	095					3	15.3	15.3	101	3	13.0	11.3	079

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

October 1956

Station	MOHANBARI												MUSSOORIE								NAGPUR		
	0130				0730				1430				0730				1430				0130		
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface . . .	31	1.3	1.1	050	31	2.4	2.0	045	31	2.0	1.9	038	31	2.1	0.3	135	31	3.8	2.5	196	31	3.8	2.0
0.15 a. g. . .	26	6.6	5.2	063	26	7.3	6.0	058	31	4.8	3.8	057	26	6.0	2.5	091	15	5.9	4.6	176	28	11.0	6.3
0.3 a. m. s. l. . .	26	6.0	4.6	061	26	7.6	6.1	054	31	4.9	4.1	057											
0.6 " . . .	26	6.0	3.2	068	26	6.5	4.8	053	30	5.7	4.4	068									28	11.7	7.9
0.9 " . . .	25	4.6	1.5	067	25	5.8	3.4	045	29	5.1	3.2	084									27	11.4	7.9
1.5 " . . .	24	5.5	1.4	173	22	4.7	1.9	065	25	6.3	3.0	194									27	9.8	6.0
2.1 " . . .	18	5.9	1.1	197	21	5.4	1.5	184	25	8.3	6.3	199	26	5.0	1.8	091	15	4.9	4.1	197	27	9.9	5.3
3.0 " . . .	12	5.5	1.8	191	17	7.3	3.2	207	23	10.6	6.7	219	23	7.4	4.4	125	11	11.3	7.6	125	24	10.9	2.5
4.5 " . . .					13	9.6	5.3	260	12	10.7	5.3	268	19	11.3	1.9	172	6	16.7	14.5	139	6	7.5	2.6
5.4 " . . .					10	15.7	12.0	273	11	14.3	10.7	272	19	20.8	8.6	268	4	16.0	11.0	199	1	5.0	5.0
6.0 " . . .					9	18.6	14.7	285	11	16.7	12.9	273	17	27.4	15.0	283	4	20.7	13.7	231			
7.2 " . . .					3	11.7	5.5	260	5	28.8	18.4	274	16	38.9	26.9	287	4	35.5	22.9	252			
9.0 " . . .					1	6.0	6.0	190	2	44.0	43.7	271	8	40.9	28.3	269	3	54.3	46.3	259			

Station	NAGPUR												NEW DELHI										
	0830*				1430				2030*				0130			0830*			1430				
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface . . .	31	5.0	3.8	054	31	5.5	2.7	055	24	4.1	3.3	073	31	1.8	0.7	171	30	2.8	0.4	338	31	4.8	2.3
0.15 a. g. . .	30	6.6	4.8	062	31	7.9	3.5	048	24	5.3	4.0	075	29	6.6	1.4	093	30	4.1	0.9	353	31	7.7	2.8
0.3 a. m. s. l. . .													30	6.1	1.6	141	30	3.6	0.8	360	31	7.2	3.1
0.6 " . . .	30	7.5	5.3	068	31	8.9	4.6	062	24	6.4	4.6	080	27	6.8	1.7	027	30	5.7	1.0	020	29	7.7	1.7
0.9 " . . .	30	9.9	6.7	087	31	8.5	4.2	068	24	9.1	5.5	085	27	7.0	2.3	355	30	7.2	1.1	033	29	8.5	1.8
1.5 " . . .	31	10.7	6.0	090	29	9.1	3.6	076	24	10.1	4.3	077	27	8.9	5.3	327	30	10.0	1.5	324	29	9.5	3.1
2.1 " . . .	31	10.6	4.9	090	28	10.5	3.4	077	24	11.2	3.6	082	25	9.7	4.5	327	30	10.6	1.7	347	29	10.7	3.0
3.0 " . . .	29	12.7	3.6	085	22	13.8	0.9	007	24	12.4	2.5	093	23	10.1	2.4	341	30	11.0	0.7	152	27	10.3	3.2
4.5 " . . .	26	14.6	4.0	112	18	13.8	4.2	014	24	12.7	2.1	133	4	14.3	10.6	265	28	17.9	5.6	250	27	18.5	9.1
5.4 " . . .	23	14.9	2.8	113	15	13.2	5.3	009	21	13.0	1.0	138	1	12.0	12.0	305	28	20.9	9.2	266	26	21.2	12.4
6.0 " . . .	23	14.7	2.4	125	11	15.4	7.9	357	18	14.2	0.2	114					28	23.3	11.9	272	24	24.6	14.3
7.2 " . . .	19	13.8	3.4	209	9	17.1	9.2	003	17	14.9	0.7	302					27	29.1	19.6	269	22	31.9	21.1
9.0 " . . .	16	12.5	4.2	264	8	17.3	8.8	353	9	18.2	6.5	221					25	34.2	27.1	268	16	39.1	29.3

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9·0 Km. above mean sea level

October 1956

Station	NEW DELHI				POONA												PORT BLAIR											
	2030*				0130				0730				1430				0130				0730							
Time in I. S. T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	2·5	1·4	094	31	1·5	1·0	237	31	1·6	0·2	139	31	2·8	1·7	072	31	2·4	1·4	110	31	2·6	2·2	088				
0·15 a. g.	28	4·1	1·6	070	31	5·0	2·3	342	30	4·8	3·0	093	31	5·7	2·7	080	29	9·0	3·8	153	28	7·7	4·3	117				
0·3 a. m. s. 1..	28	3·7	1·5	077													29	8·9	4·4	147	28	8·8	5·1	121				
0·6 "	28	6·2	1·9	055	31	3·1	1·9	243	30	2·9	1·0	118	31	4·1	2·2	075	29	9·6	5·6	141	28	10·3	7·0	121				
0·9 "	28	8·0	1·9	054	31	8·2	4·0	015	30	10·0	6·8	091	31	6·9	3·6	093	28	10·4	6·9	140	28	10·4	7·6	121				
1·5 "	28	10·0	2·2	308	26	13·5	8·3	074	25	14·3	9·3	093	30	8·3	4·3	104	23	9·6	7·1	153	27	9·6	7·9	116				
2·1 "	28	10·3	3·6	287	20	11·9	9·5	081	20	11·9	8·3	083	25	9·6	3·8	097	14	10·1	7·3	141	24	8·7	6·6	117				
3·0 "	28	10·3	1·3	279	14	11·1	7·3	085	15	10·9	6·6	063	16	8·9	7·1	079	7	8·9	7·1	075	20	8·9	6·6	111				
4·5 "	29	15·0	7·6	272	6	12·7	11·2	022	11	14·0	10·9	055	11	11·2	8·8	059	1	8·0	8·0	090	14	10·4	7·1	126				
5·4 "	29	19·2	11·6	265	2	15·5	12·1	058	7	10·9	9·5	062	9	12·6	9·3	064					9	9·1	5·6	117				
6·0 "	29	22·1	13·7	264	1	27·0	27·0	080	7	9·1	6·7	056	9	13·9	10·8	062					6	11·5	6·2	106				
7·2 "	29	26·9	20·0	265					1	10·0	10·0	210	5	9·2	8·4	084					1	12·0	12·0	095				
9·0 "	27	36·1	30·4	260									2	4·5	2·5	238												

Station	PORT BLAIR				RAIPUR								SANTACRUZ															
	1430				2030*				0130				0730				1430				0130							
Time in I. S. T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	3·5	2·0	126	31	9·5	5·3	130	31	2·3	1·7	064	31	2·6	2·1	053	31	3·7	1·7	047	31	2·4	0·7	059				
0·15 a. g.	27	8·5	5·0	137	31	10·1	6·2	131	31	10·4	7·2	081	31	9·2	7·1	064	31	7·8	4·5	062	31	8·9	4·7	042				
0·3 a. m. s. 1..	27	9·4	6·0	138	31	10·3	6·5	129													31	10·6	5·6	046				
0·6 "	26	11·0	7·2	139	31	11·3	7·8	130	31	11·9	8·4	089	31	11·6	8·6	083	31	8·0	4·6	064	31	12·2	6·3	045				
0·9 "	24	11·2	7·9	132	31	12·0	8·7	124	31	13·1	8·7	092	30	12·1	8·5	089	31	8·0	4·3	067	29	11·5	5·5	049				
1·5 "	19	11·0	9·2	140	31	12·9	10·4	121	29	11·4	7·0	082	27	12·3	7·1	081	31	10·1	5·0	076	26	8·3	6·0	067				
2·1 "	16	10·9	9·2	125	30	13·3	11·3	127	27	10·1	4·7	084	23	12·0	6·2	077	26	11·9	3·5	081	25	8·8	6·1	109				
3·0 "	9	8·4	6·9	115	30	13·0	11·6	116	21	10·7	1·6	125	23	12·3	3·5	075	22	14·8	1·2	089	25	8·8	5·0	113				
4·5 "	2	14·5	13·1	142	30	14·0	11·8	108	5	8·0	6·8	153	15	14·9	4·3	032	9	24·9	4·5	355	1	13·0	13·0	345				
5·4 "	1	16·0	16·0	110	30	13·4	12·2	104	1	15·0	15·0	180	11	14·9	6·5	015	9	22·8	7·4	341								
6·0 "	1	15·0	15·0	075	29	12·5	11·2	099					11	15·2	8·2	005	7	26·3	13·3	336								
7·2 "	1	12·0	12·0	060	28	13·4	11·7	103					5	10·0	3·5	360	6	17·5	9·6	295								
9·0 "					23	15·6	12·5	107					3	16·7	11·1	289	2	17·0	8·9	303								

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

October 1956.

Station	SANTACRUZ												TEZPUR										
	0830*				1430				2030*				0130				0730		1430				
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface	31	4.7	2.1	090	31	6.9	4.5	296	31	6.5	4.4	335	31	0.7	0.4	067	31	2.9	1.6	077	31	3.5	1.4
0.15 a. g.	31	11.0	5.3	081	31	8.4	5.4	290	31	12.9	8.6	341	29	7.2	3.4	094	29	6.3	3.9	082	28	6.1	3.0
0.3 a. m. s. l.	31	11.4	6.4	088	31	8.0	3.1	296	31	12.3	7.8	344	29	7.3	3.1	106	29	7.3	5.1	087	28	6.2	3.0
0.6 "	31	12.1	8.5	091	30	8.3	1.1	130	31	11.0	5.8	356	29	7.5	1.9	145	27	8.8	5.4	095	28	7.4	2.5
0.9 "	31	13.1	8.6	103	29	8.0	3.3	097	31	9.2	2.7	012	27	7.3	1.6	145	25	8.5	5.1	095	28	7.7	2.9
1.5 "	31	13.6	8.6	109	25	8.8	4.5	097	31	8.6	2.4	070	20	5.9	1.0	149	20	9.3	3.2	088	27	8.9	3.6
2.1 "	31	11.7	5.4	118	26	10.0	4.3	100	31	9.8	4.1	102	13	6.4	1.0	207	25	4.1	1.2	096	25	10.3	4.8
3.0 "	31	11.7	3.7	115	25	9.6	4.5	075	30	10.6	5.6	116	8	6.6	1.1	200	23	4.7	0.9	123	23	12.5	6.0
4.5 "	31	12.3	4.2	075	18	11.9	7.1	063	30	13.3	4.8	098					9	12.1	8.5	277	15	15.7	10.0
5.4 "	31	11.6	4.9	068	18	10.6	5.9	056	28	12.9	4.6	078					8	17.0	6.8	277	13	18.2	12.4
6.0 "	29	12.5	5.6	070	17	12.4	6.3	055	28	12.6	5.1	078					7	16.0	8.0	276	13	19.8	15.5
7.2 "	28	12.1	4.2	095	13	15.8	4.4	070	28	13.3	5.6	109					4	22.0	21.1	266	10	26.9	21.8
9.0 "	26	11.8	2.8	178	9	12.6	3.5	170	25	13.8	5.7	158					2	43.0	42.7	269	5	31.0	29.1

Station	TIRUCHIRAPALLI												TRIVANDRUM										
	0130				0730				1430				0130				0730		1430				
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface	31	3.4	3.0	276	31	5.4	5.2	276	31	3.9	1.8	252	31	2.8	2.4	342	31	2.3	2.0	351	30	7.1	6.
0.15 a. g.	26	10.6	7.2	275	31	11.2	10.4	260	30	6.1	1.9	257	29	11.5	10.8	329	28	9.4	8.9	341	29	12.0	11.
0.3 a. m. s. l.	26	11.9	7.9	274	31	12.8	11.8	283	30	6.0	2.2	261	29	12.9	12.2	321	28	11.4	10.8	328	29	13.1	12.
0.6 "	26	12.3	7.3	279	31	11.2	9.2	288	30	5.7	3.0	267	29	16.2	15.3	308	28	14.3	13.2	3.0	27	14.0	13.
0.9 "	26	9.8	4.3	275	31	9.9	6.9	293	29	6.3	3.3	278	27	15.5	14.3	306	27	14.6	13.8	302	26	12.9	12.
1.5 "	25	9.4	4.3	297	28	9.0	5.3	302	26	8.3	5.3	302	24	15.0	13.8	297	24	12.9	11.6	300	23	12.0	10.
2.1 "	24	9.7	5.6	296	29	9.4	5.2	309	19	10.9	8.8	296	21	14.7	12.0	293	21	10.6	9.3	304	20	10.7	9.
3.0 "	19	9.8	4.8	274	27	9.2	3.4	292	15	9.3	5.8	295	17	11.8	9.6	286	20	10.1	8.2	290	16	11.3	9.
4.5 "	7	9.6	8.3	248	20	10.3	1.9	174	7	9.1	0.1	214	7	7.6	2.7	257	13	8.7	4.4	257	6	8.5	6.
5.4 "	3	11.7	10.2	188	18	10.6	4.4	117	6	7.8	5.4	080	2	4.5	1.6	041	9	10.0	1.5	205	2	7.0	4.
6.0 "	2	7.0	5.6	158	14	12.3	7.8	101	4	8.7	7.5	085					6	7.2	2.5	125	1	2.0	2.
7.2 "					8	12.1	10.2	109	1	7.0	7.0	064					5	7.0	3.8	091			
9.0 "					4	15.0	14.9	092	1	14.0	14.0	125					1	13.0	13.0	140			

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

October 1956

Station	TRIVANDRUM				UDAIPUR												VENGURLA							
	2030*				0130				0730				1430				0130				0730			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface.	23	7.4	6.9	314	31	0.2	0.2	315	31	0.1	0.1	360	31	1.0	0.2	107	31	1.5	0.7	109	31	1.4	1.1	179
0.15 a. g.	22	9.3	8.6	311	31	5.0	0.3	011	31	5.0	3.1	010	31	5.5	3.0	041	31	6.7	1.9	025	30	6.8	2.0	088
0.3 a. m. s. l.	22	9.8	8.9	307													31	7.7	2.1	349	30	9.0	1.4	074
0.6 "	22	11.0	10.4	301													30	10.0	3.2	339	28	9.8	1.1	034
0.9 "	22	12.5	11.6	295	31	6.6	3.7	038	30	6.9	3.8	056	31	6.0	2.8	041	26	9.4	5.3	354	27	9.7	4.0	040
1.5 "	22	13.5	11.3	294	30	9.1	6.2	052	28	9.7	6.4	075	30	6.6	3.9	055	20	11.9	7.0	058	25	10.7	7.9	070
2.1 "	22	14.1	12.8	287	28	9.6	6.1	040	25	10.8	7.3	047	28	7.4	3.9	060	16	14.4	12.7	068	23	10.1	7.8	078
3.0 "	22	13.5	11.4	280	26	9.0	4.0	012	24	8.5	4.5	042	22	8.7	4.0	044	11	13.8	11.7	067	18	10.8	7.9	075
4.5 "	21	10.9	7.4	278	4	8.0	2.2	223	23	16.0	5.1	338	19	17.0	7.0	355	4	8.3	3.4	109	11	15.3	12.1	065
5.4 "	21	10.2	5.5	266	1	8.0	8.0	195	23	17.5	5.3	285	19	20.4	10.9	333	1	13.0	13.0	020	11	14.1	12.0	075
6.0 "	21	10.0	3.3	259					23	17.6	8.3	300	19	21.7	10.3	334					9	13.2	10.7	077
7.2 "	21	10.0	2.4	109					12	23.3	17.8	269	16	24.0	14.0	302					2	20.0	18.8	086
9.0 "	15	14.2	13.2	078					2	31.5	31.0	240	12	26.7	19.6	279								

Station	VENGURLA				VERAVAL												VISAKHAPATNAM							
	1430				0130				0730				1430				0130				0730			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface.	31	4.9	3.3	230	31	6.9	6.2	023	31	6.1	5.1	034	31	8.8	2.1	272	31	3.1	1.7	023	31	3.0	1.3	021
0.15 a. g.	31	8.0	4.8	251	31	13.5	12.0	022	30	13.6	12.2	037	29	8.1	0.7	223	30	5.7	3.0	057	29	5.6	2.5	059
0.3 a. m. s. l.	31	8.2	4.3	246	31	13.2	11.2	024	30	13.1	10.8	043	29	7.8	1.7	066	30	6.8	4.0	075	29	6.9	4.0	070
0.6 "	30	7.8	1.7	280	31	12.1	10.0	035	30	11.1	9.0	052	29	7.5	4.7	047	29	8.7	6.1	084	29	9.6	6.3	073
0.9 "	28	7.8	2.7	036	31	11.3	10.0	044	30	10.7	8.5	054	29	8.9	6.1	047	28	10.1	7.2	083	29	10.3	6.4	083
1.5 "	28	9.6	6.2	058	30	10.8	8.8	049	29	10.7	7.6	053	28	9.7	6.5	048	24	10.2	5.5	093	28	9.8	5.4	110
2.1 "	26	9.2	6.5	071	30	10.6	7.8	055	29	10.2	5.5	079	28	9.5	6.1	063	20	9.6	4.0	113	23	8.6	4.7	109
3.0 "	24	10.7	6.8	072	27	10.0	5.7	089	25	9.5	4.2	098	29	9.6	5.2	082	14	8.4	3.1	166	20	8.6	4.3	106
4.5 "	22	12.5	8.6	069	10	8.1	2.2	314	24	13.6	6.4	043	24	13.3	5.8	063	6	8.7	3.0	196	18	8.5	2.6	123
5.4 "	17	13.5	9.5	066	6	9.8	4.3	289	21	12.1	5.1	034	24	14.9	5.9	069					17	9.6	3.1	069
6.0 "	15	14.7	11.1	075	2	18.5	12.7	330	20	11.3	3.9	011	24	14.8	3.3	049					14	9.6	4.5	059
7.2 "	10	14.5	13.2	090					14	13.1	4.9	308	20	13.8	1.6	327					4	5.0	3.3	113
9.0 "	4	10.5	10.5	115					7	9.1	4.3	261	12	13.4	4.7	220					3	11.7	5.9	121

TABLE V—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds above 9.0 Km. above mean sea level

October 1956

Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D
	JAMSHEDPUR					MADRAS					MUSSOORIE					NEW DELHI					TEZPUR			
	1430 hrs.					2030 hrs.*					1430 hrs.					1430 hrs.					1430 hrs.			
10.5	1	35.0	35.0	285	10.5	27	20.1	18.7	105	10.5	2	62.5	57.9	267	18.0	6	18.1	14.4	265	10.5	2	42.5	42.3	2
	JODHPUR				12.0	24	24.9	23.6	102	12.0	2	63.5	61.8	258	20.0	1	6.0	6.0	255	12.0	2	42.5	42.4	2
	0830 hrs.*				14.1	17	34.3	32.7	099		NAGPUR					2030 hrs.*					TIRUCHIRAPALI			
10.5	16	30.3	24.3	252	16.2	10	41.9	41.0	088	10.5	15	13.3	5.7	255	10.5	27	39.0	34.1	257	10.5	4	17.7	16.8	0
12.0	13	34.1	31.1	247	18.0	2	58.5	58.1	090	12.0	11	17.2	9.7	223	12.0	21	45.6	42.9	257	12.0	2	18.5	18.5	0
14.1	9	36.0	32.3	252		MANGLORE				14.1	8	20.1	12.9	191	16.2	4	42.0	41.7	254		TRIVANDRUM			
16.2	2	11.0	10.5	252		1430 hrs.				16.2	6	23.0	11.3	142	18.0	2	20.5	20.5	253	10.5	1	14.0	14.0	0
18.0	1	2.0	2.0	290	10.5	4	17.7	16.8	095	10.0	4	28.8	16.0	139		PORTBLAIR					2030 hrs.*			
	1430 hrs.				12.0	3	21.0	20.5	097	20.0	2	31.0	14.9	115	10.5	13	19.4	17.0	099	10.5	15	20.5	19.8	0
10.5	5	33.6	27.2	251	14.1	3	28.7	27.8	103	23.0	1	33.0	39.0	080	12.0	12	23.6	21.7	099	12.0	14	29.3	27.4	0
12.0	1	32.0	32.0	255	16.2	1	29.0	29.0	070		1430 hrs.				14.1	5	38.6	38.0	099	14.1	14	37.7	30.4	0
14.1	1	43.0	43.0	265		MUSULIPATNAM				10.5	6	17.2	11.0	344	16.2	2	56.5	56.5	084		UDAIPUR			
	2030 hrs.*				10.5	1	23.0	23.0	095	12.0	4	15.5	8.4	309		RAIPUR					1430 hrs.			
10.5	15	38.2	34.1	251		1430 hrs.				14.1	3	25.0	20.0	279	10.5	2	22.0	16.6	221	12.0	1	28.0	28.0	0
12.0	12	32.7	29.0	255		MINICOY				16.2	2	18.0	13.5	336		0730 hrs.					VENGURLA			
14.1	6	42.0	38.5	252	10.5	2	25.5	25.5	101	10.5	7	21.3	5.3	245	10.5	2	17.5	11.9	287	10.5	3	15.6	12.3	0
16.2	1	5.0	5.0	310	12.0	1	39.0	39.0	105	12.0	5	21.0	12.1	248	10.5	2	19.0	19.0	265	12.0	1	14.0	14.0	0
	MADRAS					1430 hrs.				14.1	2	31.0	29.3	195	12.0	1	19.0	19.0	265		VERAVAL			
	0830 hrs.*				10.5	1	24.0	24.0	115	16.2	2	31.0	15.3	199		SANTACRUZ					0730 hrs.			
10.5	25	22.1	21.0	096	12.0	1	43.0	43.0	115		NEW DELHI					0830 hrs.*					1430 hrs.			
12.0	25	26.4	25.8	093		MOHANBARI				10.5	22	41.6	34.8	262	10.5	26	12.5	4.9	185	10.5	8	9.1	5.2	0
14.1	23	37.7	35.3	087	10.5	1	7.0	7.0	120	12.0	16	41.9	40.1	259	12.0	21	14.9	8.7	172	12.0	7	9.7	0.7	0
16.2	16	42.7	40.0	091	12.0	1	6.0	6.0	215	14.1	12	37.3	33.8	258	14.1	15	17.5	11.5	135	14.1	5	6.4	2.6	0
18.0	12	33.5	29.6	091		0730 hrs.				16.2	7	34.9	32.1	262	16.2	7	13.8	8.2	139	16.2	3	13.0	10.6	0
20.0	2	36.0	36.0	104	10.5	1	7.0	7.0	120	18.0	5	26.6	22.2	262		2030 hrs.*				18.0	1	21.0	21.0	0
	1430 hrs.				12.0	1	6.0	6.0	215	20.0	4	28.2	15.2	238	10.5	22	13.8	8.0	160		VISAKHAPATNAM			
10.5	5	16.0	16.0	100		1430 hrs.				23.0	2	113.0	110.0	258	12.0	21	16.0	9.8	152	10.5	1	18.0	18.0	0
12.0	5	21.8	21.4	108	10.5	1	62.0	62.0	270	26.0	1	110.0	110.0	250	14.1	14	16.3	10.9	152		1430 hrs.			
14.1	5	32.0	31.0	107		MUSSOORIE				10.5	14	42.1	34.5	274	16.2	2	27.0	26.7	095	10.5	8	12.0	5.4	0
16.2	5	37.0	35.8	092	10.5	2	35.0	34.9	282	12.0	12	42.7	38.5	271		TEZPUR					0730 hrs.			
18.0	4	40.3	40.3	100	12.0	2	37.5	35.9	285	14.1	9	41.7	38.8	271	10.5	1	29.0	29.0	275	14.1	6	12.5	6.0	0

RADIOSONDE DATA

October 1956

During the month, observations of upper air temperature, pressure and humidity were made at 12 stations in India as given in the list below. For a detailed description of the instruments used a reference may be made to the I. M. D. Scientific Notes Nos. 112 and 113 (Volume IX).

LIST OF RADIOSONDE STATIONS IN INDIA

S.No.	Name of station	Type of instrument used	Date of starting	Hours of routine observations in GMT during the month	Remarks
1.	Allahabad	Clock type	1st October 1944	03 and 15	
2.	Bombay	Clock type	7th September 1954	03 and 15	
3.	Calcutta	Clock type	13th December 1946	03 and 15	Fan type used from 13th December, 1946 to 30th November, 1947.
4.	Gauhati	Clock type	22nd July 1955	03 and 15	
5.	Jodhpur	Clock type	17th April 1946	03 and 15	
6.	Madras	Fan type	29th June 1946	03 and 15	
7.	Nagpur	Fan type	1st October 1946	03 and 15	
8.	New Delhi	Clock type	3rd December 1943	03 and 15	
9.	Port Blair	Fan type	4th December 1949	15	
10.	Trivandrum	Fan type	1st July 1947	15	
11.	Veraval	Fan type	3rd October 1944	15	
12.	Visakhapatnam	Fan type	8th December 1946	15	

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(A) From ascents at 03 hrs. G. M. T.

October 1956

Standard pressure surface mbs.	NAGPUR Surf. Pr. (976 mb.)						NEW DELHI (988 mb.)					
	No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A			
			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point
Surface	30	311	297.8	303	295	293.0	30	210	295.7	300	293	292.3
1000	30	96	...	...	...	...	29	102	...	...	..	..
900	30	1017	294.7	297	290	287.6	28	1019	293.6	298	291	287.3
850	30	1510	291.1	295	286	284.9	28	1511	290.5	295	287	284.8
800	30	2027	288.0	292	283	281.7	28	2027	287.1	291	282	280.7
700	30	3147	282.3	286	277	273.0	28	3143	281.3	287	277	271.3
600	26	4413	276.4	281	272	265.4	27	4401	275.2	280	270	262.5
500	24	5880	269.5	273	265	...	26	5851	266.9	272	262	...
400	20	7617	260.2	263	255	...	25	7568	257.9	264	253	...
300	18	9750	245.6	253	238	...	24	9693	245.0	253	239	...
250	17	11049	236.6	245	230	...	22	10974	236.4	245	231	...
200	16	12563	225.9	233	220	...	20	12489	226.0	235	222	...
175	14	13440	219.9	227	213	...	20	13367	221.5	231	218	...
150	13	14446	212.7	219	208	...	19	14360	216.1	225	213	...
125	10	15620	209.5	217	205	...	14	15503	210.9	219	202	...
100	8	16988	205.7	213	202	...	14	16866	207.9	217	195	...
80	6	18370	207.5	213	200	...	11	18242	208.4	217	193	...

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(B) From ascents at 15 hrs. G. M. T.

October 1956

Standard pressure surface mbs.	NAGPUR Surf. Pr. (973 mb.)						NEW DELHI (986 mb.)						PORT BLAIR (1001 mb.)					
	No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A			
			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point
Surface	26	311	300.2	303	298	292.5	31	210	295.2	300	292	293.5	31	79	298.8	301	297	297.0
1000	26	70	...	...	...	...	31	86	...	...	...	...	31	85	...	...	...	...
900	26	999	296.2	299	293	288.3	31	1005	293.9	298	288	286.9	31	1007	293.7	295	291	291.1
850	26	1494	292.4	295	290	285.9	31	1497	290.2	295	287	284.3	31	1499	291.1	293	289	288.5
800	26	2013	288.3	291	285	282.8	31	2011	286.9	292	283	280.9	31	2017	288.5	290	287	285.6
700	26	3135	282.5	286	279	272.3	31	3127	280.4	285	275	271.2	30	3141	283.3	285	280	279.6
600	26	4401	276.1	281	272	263.4	31	4381	274.0	278	268	261.1	30	4409	276.3	279	270	273.7
500	24	5861	269.0	272	265	...	31	5826	265.3	270	259	..	30	5866	268.1	272	262	...
400	19	7583	258.0	265	254	...	30	7527	255.1	260	248	...	29	7586	257.9	265	252	...
300	12	9699	244.0	252	240	...	29	9621	242.0	246	236	...	23	9691	244.3	255	233	...
250	10	10969	233.4	237	229	...	27	10886	232.9	237	226	...	14	10989	236.9	251	228	...
200	9	12467	222.9	226	216	...	25	12378	222.9	228	210	...	12	12505	226.4	240	214	...
175	7	13334	215.1	219	210	...	20	13238	217.3	223	204	...	5	13238	217.2	223	212	...
150	5	14317	208.9	211	207	...	16	14199	211.2	215	201	...	5	14267	210.8	219	205	...
125							14	15315	206.0	213	199	...						
100							11	16665	203.0	209	195	..						
80							8	17976	203.0	208	196	..						
TRIVANDRUM (1002 mb.)						VERAVAL (1007 mb.)						VISAKHAPATNAM (1003 mb.)						
Surface	23	64	298.6	300	297	295.0	29	8	299.7	301	298	296.1	25	48	300.7	302	297	296.1
1000	23	83	...	...	...	...	29	73	...	...	...	...	25	76	...	...	...	...
900	23	999	293.0	295	291	288.2	29	1003	295.9	298	290	287.5	25	1001	294.5	297	293	289.5
850	23	1494	290.2	292	287	285.6	29	1498	292.2	295	286	284.3	25	1494	291.2	294	287	286.4
800	23	2010	287.7	291	286	282.4	29	2017	288.2	292	282	280.9	25	2012	288.5	290	284	283.5
700	23	3130	282.1	285	279	276.4	27	3139	283.5	287	279	270.6	25	3134	282.9	286	280	277.5
600	22	4390	275.7	280	272	...	26	4410	277.9	285	273	262.5	25	4402	276.4	280	272	270.2
500	21	5845	268.1	274	263	...	25	5874	269.8	279	263	...	25	5862	268.6	273	264	...
400	21	7568	258.1	262	253	...	24	7600	259.6	269	254	...	25	7586	258.0	262	253	...
300	16	9688	243.8	249	237	...	22	9727	244.3	254	240	...	23	9703	242.9	247	237	...
250	16	10967	235.4	245	233	...	19	11002	234.6	243	229	...	22	10973	232.8	239	229	...
200	15	12461	222.7	229	215	...	19	12505	224.2	235	217	...	20	12452	222.3	232	211	...
175	15	13309	216.5	223	210	...	17	13363	219.3	228	212	...	16	13306	216.4	220	210	...
150	15	14287	209.6	221	203	...	14	14336	212.7	223	205	...	16	14282	209.3	215	200	...
125	11	15414	204.1	216	194	...	7	15551	208.0	218	203	...	7	15381	202.7	210	192	...
100	8	16736	198.3	212	191	...							5	16642	195.6	197	193	...
80																		

NOTE.— Number of observations refer to those of dynamic height.

Means are not worked out for temperature and dew point for the 1000 mb. surface and for dew point for standard pressure surfaces with temperature less than 273 °A.

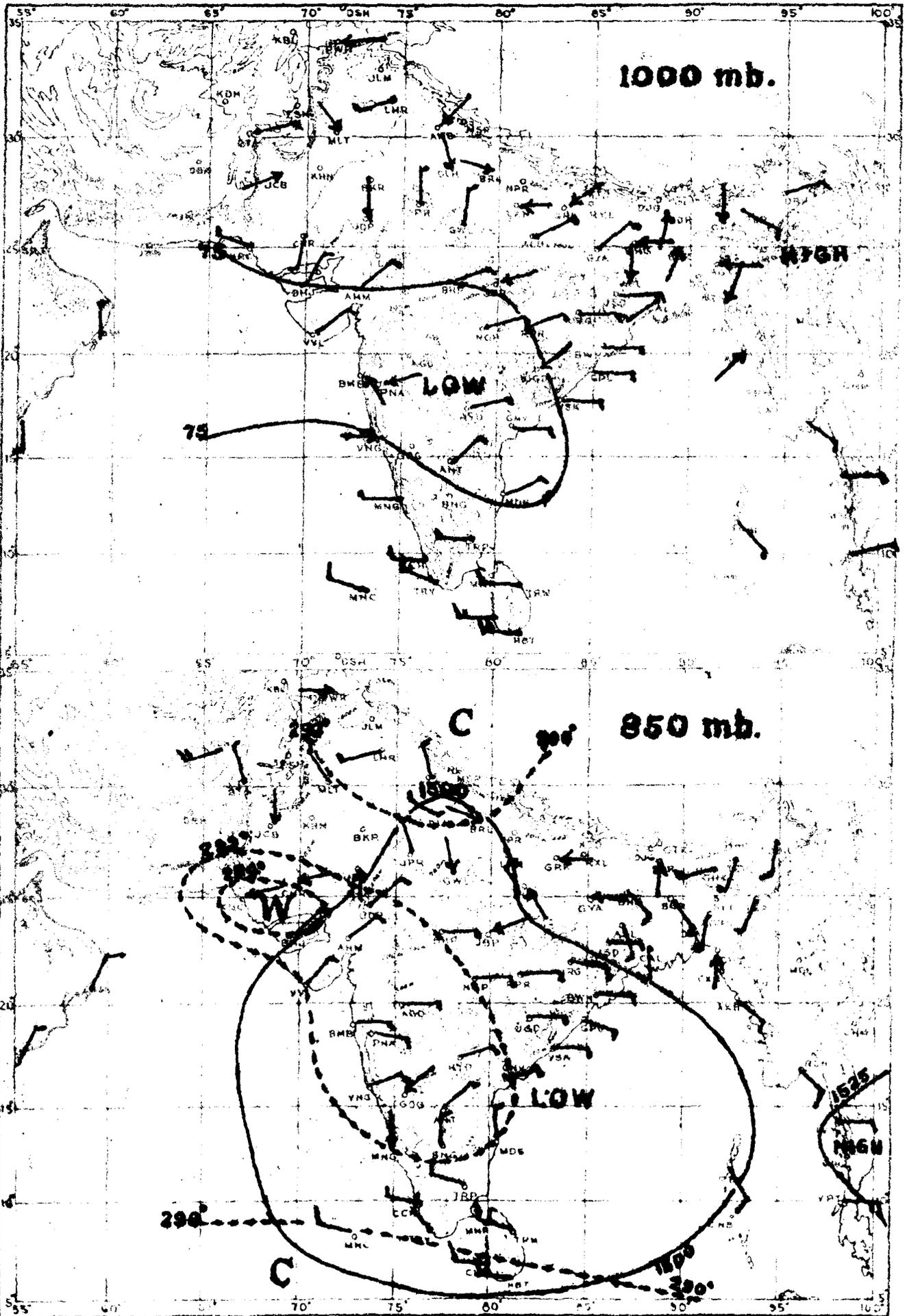
Means are not worked out for less than five observations at standard pressure surfaces.

MONTHLY MEAN CONSTANT PRESSURE CHARTS

OCTOBER 1956

J. Mel. D.

Plate I.



RESULTANT WIND ——— 5 Knots, ——— 10 Knots, ——— 50 Knots

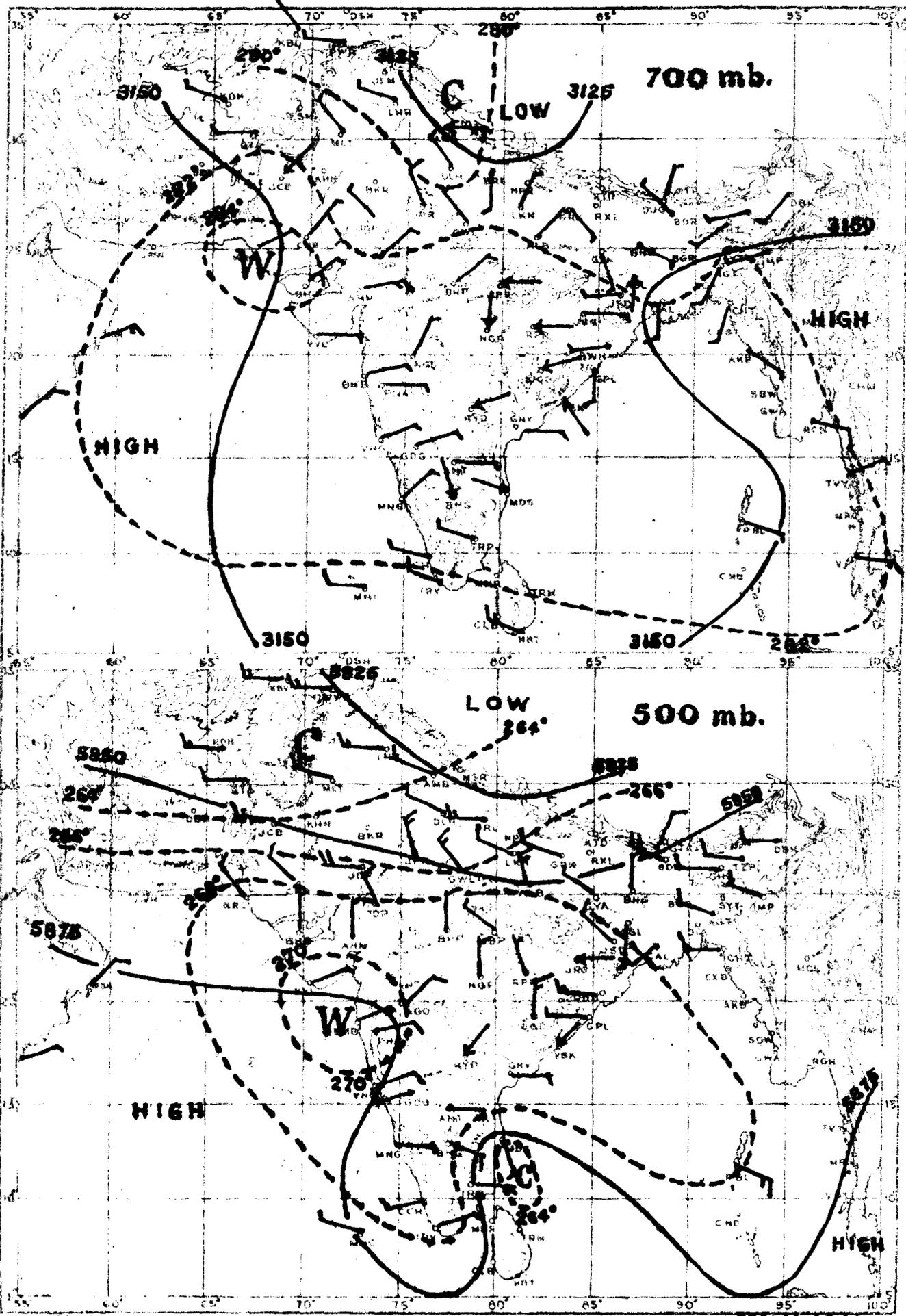
----- Isotherms in degrees absolute ——— Contours in geopotential metres

MONTHLY MEAN CONSTANT PRESSURE CHARTS

OCTOBER 1956

1 Met.D.

Plate II



RESULTANT WIND — 5 Knots, — 10 Knots, — 50 Knots.

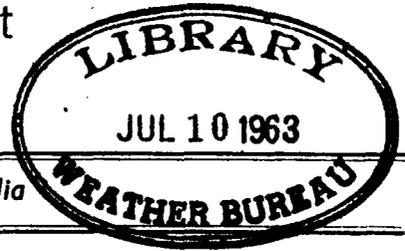
— Isotherms in degrees absolute. — Contours in geopotential metres.

BB60/474/1/60

8 PE 8 2000 1956

India. INDIA WEATHER REVIEW, 1956.

Monthly Weather Report
November.



Published by authority of the Government of India

Chief features—

- (1) A spell of wet weather over northeast India, Uttar Pradesh, and Madhya Pradesh during the first week of the month,
- (2) A depression in southwest Bay of Bengal in the 3rd week, and
- (3) Good northeast monsoon rains over the south Peninsula.

The shallow low pressure area which was over Hyderabad on the 31st October moved north-eastwards and lay over Vindhya Pradesh and adjoining southeast Uttar Pradesh on the 1st November. On the next day, it lay as a diffuse trough extending from southeast Uttar Pradesh to Assam and became unimportant by the 3rd. Under its influence, fairly widespread or local rain occurred in Madhya Pradesh and east Uttar Pradesh on the 1st and 2nd. Locally heavy falls were reported from these areas on the 1st, when Chhindwara reported 5" and Allahabad, Jabalpur and Betul 4" each. Northeast India also experienced fairly widespread or local rain from the 1st to 3rd, some of the falls in Assam on the 2nd being heavy.

In association with an easterly wave which moved into the south-west Bay of Bengal, the northeast monsoon was active over Tamilnad on the 6th and 7th. A trough of low pressure appeared over the west central Bay off the south Circars coast on the 8th. It moved inland into Rayalaseema on the 9th as a low pressure wave, with an associated upper air circulation extending up to 10,000 ft. a. s. l. and became unimportant by the 10th. Under its influence, active northeast monsoon conditions prevailed over south coastal Andhradesa on the 8th and in Rayalaseema on the 9th. Nellore recorded 5" of rain on the 8th and Ongole 5" on the 9th. Three easterly waves that moved westwards in quick succession across the southwest Bay served to maintain the activity of the northeast monsoon over the south Peninsula till the middle of the month.

With the arrival of another easterly wave, a trough of low pressure appeared in the south Andaman Sea and the adjoining southeast Bay on the 16th. It moved slowly westwards during the course of the next two days, became more marked on the 18th and concentrated into a depression by the 19th morning when it was centred near Lat. 8. 5° N and Long. 84. 5° E. Moving in a westnorth-westerly direction, it was centred close to coast between Nagapattinam and Cuddalore on the 20th morning. Passing inland, it weakened into a low pressure area by the same evening when it lay over Mysore and neighbourhood. The low pressure area moved westnorthwest and emerging into the east central Arabian Sea lay as a shallow trough of low pressure off the Kanara coast on the morning of 21st. The trough extended northwards during the course of the next two days becoming more marked at the same time and lay off the Konkan coast on the 23rd morning. Thereafter, it weakened gradually and filled up by the 24th evening. Under the influence of this trough in the Arabian Sea, moist air penetrated into the Konkan, Deccan (Desh), Madhya Pradesh and Gujarat and a brief spell of wet weather prevailed over these areas between the 22nd and 24th.

The Bay depression mentioned above was responsible for strong northeast monsoon conditions over south Peninsula from the 20th to 24th, which caused locally heavy to very heavy rain over the area. Some noteworthy amounts of rainfall were — 20th: Nagapattinam 9", Jayankondam (Madras State) 5"; 21st: Nellore 4"; 23rd: Mathurai 5"; 24th: Tuticorin 5". The Madras-Tuticorin Express train met with a tragic accident at Ariyalur (about 40 miles from Tiruchi) in the early hours of the 23rd due to the southern embankment of a bridge having been washed away by unusually high floods in the river Marudiyar. The number of persons reported to have been killed was 154.

By the 25th, dry continental air swept over the central parts of the country and most parts of the Peninsula. As a result of this, the activity of the northeast monsoon was restricted to the extreme south of the Peninsula during the rest of the month.

In association with a western disturbance that moved across the extreme north of the country in the beginning of the month, fairly widespread or local thundershowers occurred in the Punjab hills and scattered showers in Jammu and Kashmir and the Plains of the Punjab (I) on the 1st and 2nd. The next western disturbance—a feeble one—appeared over Jammu and Kashmir on the 10th and moved away eastwards. It caused scattered showers in Assam on the 13th. Two more western disturbances moved across the extreme north of the country during the last week of the month but they were inactive and did not cause any precipitation.

The rainfall for the month was in large excess in Assam, Bihar, Uttar Pradesh, Vindhya Pradesh, west Madhya Pradesh, Deccan (Desh), north Hyderabad and Mysore, in moderate excess in east Madhya Pradesh and Rayalaseema, in slight excess in the Konkan and Tamilnad and normal in south Hyderabad, Malabar and south Kanara and Travancore-Cochin. It was in slight defect in coastal Andhradesa, in moderate defect in the Bay Islands, West Bengal, Chota Nagpur and the Punjab (I) and in large defect elsewhere over the country, west Rajasthan having no rain.

The mean maximum temperature was below normal in Chota Nagpur, Uttar Pradesh, east Rajasthan, Madhya Bharat, Vindhya Pradesh, west Madhya Pradesh, Deccan (Desh), Hyderabad and Mysore and normal over the rest of the country. The mean minimum temperature was above normal in Deccan (Desh), Hyderabad, Rayalaseema and Mysore and normal in the remaining parts of the country except in east Rajasthan where it was below normal.

The mean relative humidity in the morning was in excess in the Punjab (I), east Rajasthan, Madhya Bharat, Vindhya Pradesh, west Madhya Pradesh, Deccan (Desh), Hyderabad, Rayalaseema and Mysore and in defect in Jammu and Kashmir. It was normal over the rest of the country.

The mean cloud amount in the morning was in excess in Bihar, east Uttar Pradesh, Madhya Bharat, Vindhya Pradesh, west Madhya Pradesh, the Konkan, Deccan (Desh), Hyderabad, Rayalaseema, Tamilnad, Malabar and south Kanara, Mysore and Travancore-Cochin, normal in the Bay Islands, Assam, Chota Nagpur, Madhya Pradesh, Gujarat, Saurashtra and Kutch and coastal Andhradesa and in defect in West Bengal, Orissa, the Punjab (I), Jammu and Kashmir and Rajasthan.

Table I contains the divisional and sub-divisional means of rainfall, temperature, humidity and cloud amount for the 13 chief political divisions and the 28 sub-divisions. The stations whose observations are used for preparing these means are given in the subsequent tables.

The highest maximum temperature given for any station in the accompanying tables is that recorded within the 24 hours ending at 0830 hrs. I. S. T. of the date noted in the succeeding column. Similarly the heaviest fall in 24 hours for any station denotes the amount recorded during the 24 hours ending at 0830 hrs. I. S. T. of the date given in the succeeding column.

POONA 5,
The 27th March 1958.

S. S. LAL,
for Director General of Observatories.

*In the description given in the following paragraphs, the names of the meteorological sub-divisions are given according to the scheme in force prior to 1st November 1956. This has been done to secure uniformity in the description of the mean monthly meteorological elements for all the months of 1956.

TABLE I.—DIVISIONAL AND SUB-DIVISIONAL MEANS—NOVEMBER, 1956

1	Rainfall (inches)	Percentage of normal	Mean maximum temperature °F.	Mean minimum temperature °F.	Relative humidity %		Cloud.		1	Rainfall (inches)	Percentage of normal	Mean maximum temperature °F.	Mean minimum temperature °F.	Relative humidity %		Cloud.	
					0830 hrs. I.S.T.	1730 hrs. I.S.T.	0830 hrs. I.S.T.	1730 hrs. I.S.T.						0830 hrs. I.S.T.	1730 hrs. I.S.T.	0830 hrs. I.S.T.	1730 hrs. I.S.T.
Division									Division—contd.								
1. Assam (Including Manipur & Tripura).	1.89	182	80.7	63.2	85	81	2.6	1.7	8. Madhya Bharat and Vindhya Pradesh	0.85	157	79.5	52.0	66	45	1.7	1.7
	+0.85	..	+0.3	+1.7	+2	..	-0.3	..		+0.31	..	-3.9	-1.1	+8	..	+0.6	..
2. West Bengal	0.46	61	81.8	64.1	72	65	1.3	1.0	9. Madhya Pradesh	1.78	266	81.0	59.4	71	52	2.9	2.7
	-0.30	..	-1.5	+1.2	0	..	-0.4	..		+1.11	..	-2.8	+1.6	+8	..	+1.1	..
3. Orissa	0.58	29	83.2	65.7	76	64	1.5	2.1	10. Bombay (Including Saurashtra and Kutch).	2.02	189	86.7	65.8	69	53	2.7	2.7
	-1.40	..	-1.0	+0.8	+3	..	-0.9	..		+0.95	..	-1.7	+1.7	+7	..	+0.8	..
Bihar	1.44	320	79.8	59.1	72	65	1.4	1.6	11. Hyderabad	1.59	153	82.5	65.6	76	56	4.2	4.3
	+0.99	..	-1.9	+0.8	+3	..	0	..		+0.55	..	-2.9	+2.5	+13	..	+1.7	..
Uttar Pradesh	0.77	367	79.6	53.5	71	57	0.9	0.9	12. Madras (Including Travancore-Cochin).	7.11	105	85.0	72.8	82	74	5.2	5.5
	+0.56	..	-3.1	+0.2	+5	..	+0.1	..		+0.36	..	-0.8	+1.2	+3	..	+1.0	..
Punjab (I) (Including Pepsu and Delhi).	0.05	56	81.9	50.3	69	43	0.5	0.5	13. Mysore	4.54	175	79.8	65.5	87	68	5.6	5.6
	-0.04	..	-1.1	-0.5	+12	..	-0.3	..		+1.94	..	-2.1	+2.1	+12	..	+1.5	..
Rajasthan	0.01	6	83.8	52.0	55	32	0.5	0.6	Mean of India	1.95	193	82.5	60.8	72	56	2.4	2.5
	-0.15	..	-2.3	-2.3	+5	..	-0.4	..		+0.48	..	-2.0	+0.7	+6	..	+0.5	..
Sub-division									Sub-division—contd.								
1. Bay Islands	6.44	61	85.8	74.4	75	82	-5.0	4.3	15. Madhya Pradesh, East.	0.93	137	81.8	60.0	73	56	2.4	2.5
	-4.08	..	+1.9	+0.9	-1	..	+0.4	..		+0.25	..	-0.5	+1.8	+3	..	+0.2	..
2. Assam (Including Manipur & Tripura)	1.89	182	80.7	63.2	85	81	2.6	1.7	16. Madhya Pradesh, West.	2.31	345	80.6	59.1	69	50	3.3	2.8
	+0.85	..	+0.3	+1.7	+2	..	-0.3	..		+1.64	..	-4.2	+1.4	+12	..	+1.7	..
3. West Bengal	0.46	61	81.8	64.1	72	65	1.3	1.0	17. Gujarat	0.04	8	89.2	61.5	61	41	1.3	1.5
	-0.30	..	-1.5	+1.2	0	..	-0.4	..		-0.44	..	-1.9	+1.1	+1	..	+0.1	..
4. Orissa	0.58	29	83.2	65.7	76	64	1.5	2.1	18. Saurashtra and Kutch.	0.01	7	89.8	62.1	58	39	1.0	1.0
	-1.40	..	-1.0	+0.8	+3	..	-0.9	..		-0.13	..	+0.1	-0.5	+3	..	-0.1	..
5. Chota Nagpur	0.29	52	78.9	58.5	69	60	1.4	1.7	19. Konkan	2.01	113	87.8	72.5	73	67	3.5	3.5
	-0.27	..	-2.1	+0.9	+1	..	-0.3	..		+0.23	..	-1.2	+1.7	+4	..	+0.9	..
6. Bihar	2.08	520	80.5	59.5	75	68	1.5	1.5	20. Deccan (Desh)	4.03	328	82.9	64.5	78	59	4.1	4.4
	+1.68	..	-1.7	+0.7	+4	..	+0.3	..		+2.80	..	-2.8	+3.4	+15	..	+1.8	..
7. Uttar Pradesh, East.	1.31	570	79.4	55.0	73	62	1.1	1.0	21. Hyderabad, North	2.11	220	82.0	64.1	77	58	4.1	4.4
	+1.08	..	-4.0	+0.7	+5	..	+0.2	..		+1.15	..	-2.7	+2.3	+16	..	+1.8	..
8. Uttar Pradesh, West.	0.29	161	79.8	52.2	69	53	0.8	0.8	22. Hyderabad, South	1.07	95	82.8	66.7	75	55	4.2	4.2
	+0.11	..	-2.3	-0.2	+5	..	0	..		-0.06	..	-3.0	+2.7	+11	..	+1.5	..
9. Punjab (I) (Including Pepsu and Delhi).	0.05	56	81.9	50.3	69	43	0.5	0.5	23. Coastal Andhra-desa	4.27	78	84.4	71.6	80	73	4.5	4.5
	-0.04	..	-1.1	-0.5	+12	..	-0.3	..		-1.23	..	-0.7	+1.2	+5	..	+0.6	..
10. Jammu and Kashmir	0.23	36	62.5	34.7	60	41	1.4	1.7	24. Rayalaseema	3.00	127	86.1	70.2	81	64	4.5	4.9
	-0.41	..	0	-1.1	-6	..	-0.5	..		+0.63	..	-1.7	+2.3	+7	..	+1.1	..
11. Rajasthan, West	0	0	85.3	52.7	46	28	0.3	0.4	25. Tamilnad	10.61	114	84.3	73.2	83	76	5.9	5.9
	-0.04	..	-1.9	-1.2	-2	..	-0.6	..		+1.29	..	-1.2	+1.2	+1	..	+1.3	..
12. Rajasthan, East (Including Ajmer).	0.02	7	82.6	51.5	62	35	0.5	0.7	26. Malabar and South Kanara.	4.56	110	87.8	74.6	81	71	4.7	5.7
	-0.26	..	-2.6	-3.2	+10	..	-0.3	..		+0.41	..	+0.3	+0.9	+2	..	+0.9	..
13. Madhya Bharat	0.21	36	80.2	52.1	59	39	1.5	1.7	27. Mysore	4.54	175	79.8	65.5	87	68	5.6	5.6
	-0.38	..	-4.0	-1.0	+6	..	+0.5	..		+1.94	..	-2.1	+2.1	+12	..	+1.5	..
14. Vindhya Pradesh	1.92	409	78.4	51.9	76	54	2.1	1.7	28. Travancore-Cochin	6.88	101	86.7	75.2	81	77	5.5	6.7
	+1.45	..	-3.6	-1.2	+11	..	+0.6	..		+0.05	..	+0.7	+0.8	-1	..	+1.0	..

NOTE.—The entries in the second line for each division and sub-division indicate departures from normal.

Errata to M.W.R. November 1956

Page	Station	Height	Hour	Column	For	Read
<u>Table II</u>						
502	Bankura	-	-	21	0	-
"	Asansol	-	-	24	Blank	0
503	Chaibasa	-	-	2	82.	82.0
"	Dumka	-	-	1	Duramka	Dumka
"	Ambala	-	-	9	2	22
"	"	-	-	10	22	0
505	Dohad	-	-	11	-	0
506	Gadag	-	-	16	+3.0	+4.0
"	Khammameth	-	-	24	Blank	0
"	Anantapur	-	-	13	3.37	3.35
"	Tiruchirappalli	-	-	21	5	0
"	"	-	-	23	0	5
"	Coimbatore (Peelamedu aerodrome)	-	-	11	6.34	6.35
506	Chitaldrug	-	-	9	Blank	19, 26
"	"	-	-	10	.17	0.17
507	Hassan	-	-	17	-3.4	3.4
"	Mysore	-	-	18	+5.5	5.5
"	Pachmarhi	-	-	4	77	76
508	Nandurbar	-	-	1	aurbar	Nandurbar

Table III

509	Maya Bander	-	1730	7	08.1	80.1
510	Burdwan	-	1730	4	10130	10133
511	Puri	-	0830	3	"	20
512	Gaya	-	1730	24	5	0
513	Dehra Dun	-	0530	4	1010.2	1016.2
"	Meerut	-	0830	14	0.3	-0.3
514	Chandigarh	-	0830	13	2.0	0
"	Ferozepur	-	0830	22	0	1
"	Footnote *				blank	Data not available
"	Jammu	-	0830	2	0530	0830
"	Sriganganagar	-	0530	26	4	0
"	"	-	0830	26	3	0
515	J'	-	2330	4	1016.9	1016.0
516	Sheopur Kalan	-	1730	5	987.5	987.3
"	Gondia	-	0830	8	71.5	61.5
"	Pendra	-	1130	13	3.3	2.3
518	Dahanu	-	0830	8	62.9	68.1
"	"	-	0830	9	29	62.9
519	Malegaon	-	0830	8	53.1	63.1
"	Vengurla	-	2330	20	Blank	0
"	Kolhapur	-	0830	5	95.5	950.5
522	Salem	-	1130	4	1012.3	1012.2
"	Madras	-	0830	11	8.9	89
524	Trincomalee	-	0830	3	24	11

Page	Station	Height	Hour	Column	For	Read
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Table IV

527	Agartala	9.0	0130	D	276	376
531	Gadag	6.0	0130	D	15.2	152
532	Gaya	6.0	1730	V	Blank	24.3
"	"	"	"	v	2.0	22.0
535	Mangalore	2.1	0130	D	10	106
539	Udaipur	9.0	1430	v	3.99	39.9

Table V

541	Cochin	-	1430	v	21.5	2.1
-----	--------	---	------	---	------	-----

Table VI

544	Calcutta	-	-	Height	5847	5848
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.....

525 4th line - Correct rodiowind to radiowind.

" 1st para, last line : For 'aga the instscheduled' read 'against the scheduled'

Table with columns: Division and station, Hour of observation I.S.T., Height of barometer cistern above mean sea level in feet, Mean pressure in millibars (At mean sea level, At station level, Departure normal), Mean temperature in °F. (Dry bulb, Wet bulb, Dew point), Vapour pressure in mbs., Relative humidity %, Departure from normal, Cloud amount (Oktas) (Mean amount, Departure from normal), Mean wind speed, miles per hour (39 or more, 13 to 38, 1 to 12), Wind speed (m.p.h.), No. of observations (Wind direction: N, NE, E, SE, S, SW, W, NW, Calm, Variable).

TABLE III—SUMMARY OF OBSERVATIONS AT FIXED HOURS—NOVEMBER, 1956

Table with columns: Division and station, Hour of observation I.S.T., Height of barometer, Mean pressure, Mean Temperature, Vapour pressure, Relative humidity, Cloud amount, Wind speed, No. of observations. Rows include stations like Madhya Bharat, Sheopur Kalan, Guna, Rajgarh, etc.

(P)—Mean of 15 days.

MONTHLY MEANS OF UPPER WINDS, NOVEMBER 1956

During the month, observations of velocity and direction of upper winds were made at 52 stations in India. Out of these, at 42 stations all the observations were taken by means of pilot balloons and at 10 stations some observations were made by means of pilot balloons while the other observations by the radiowind method. Particulars of the stations, their co-ordinates and the approximate times of the regular pilot balloon and rawin ascents at each station are given in the table overleaf. All radiowind ascents have been indicated by means of an asterisk (*) against the instscheduled hours.

Data from ascents made at the scheduled time or within two hours on either side of the scheduled times of regular observations have been used for averaging.

Data up to 9.0 km. a.m.s.l. are given under Table IV and data above 9.0 km. a.m.s.l. under Table V.

In Tables IV and V :

n—represents the number of observations,

V—represents the mean wind speed in knots irrespective of direction,

v—represents the resultant mean velocity in knots,

D—represents the direction of the resultant mean wind in degrees East of North.

Mean and resultant winds are given in this publication for the following heights :

Surface, 0.15 km. a.g., 0.3, 0.6, 0.9, 1.5, 2.1, 3.0, 4.5, 5.4, 6.0, 7.2, 9.0, 10.5, 12.0, 14.1, 16.2, 18.0, 20.0, 23.0, 26.0, 30.0, and 35.0 km. a.m.s.l. Of these the levels 1.5, 3.0, 5.4, 7.2, 9.0, 12.0, 14.1 and 16.2 km. a.m.s.l. are considered as the best approximations to the standard pressure levels 850, 700, 500, 400, 300, 200, 150 and 100 mb. respectively.

PARTICULARS OF PILOT BALLOON AND RAWIN STATIONS IN INDIA

Station	Lat. N.	Long. E.	Height of Anemometer head a.m.s.l. in metres	Date of opening	Approximate times of flight (IST)
Agartala	23°53'	91°15'	17	28th November 1951	0130 0730 1430
Ahmedabad	23°04'	72°38'	61	19th May 1928	0130 0730 1430
Amausi	26°45'	80°53'	126	20th November 1950	0130 0730 1430
Ambala	30°23'	76°46'	282	1st April 1941	0130 0730 1430
Anantapur	14°41'	77°37'	364	12th February 1946	0730 1430
Asansol	23°41'	86°59'	126	29th May 1942	0130 0730 1430
Baghdodgra	26°38'	88°19'	138	7th June 1953	0730 1430
Bairagarh	23°17'	77°21'	524	26th February 1943	0130 0730 1430
Bamrauli	25°27'	81°44'	103	28th February 1930	0130 0830* 1430
Bangalore	12°58'	77°35'	936	19th May 1915	0130 0730 1430
Barcilly	28°22'	79°24'	180	12th January 1943	0730 1430
Begumpet	17°27'	78°28'	542	1st September 1929	0130 0730 1430
Bhagalpur	25°14'	86°57'	60	19th May 1950	0730 1430
Bhubaneshwar	20°15'	85°50'	45	5th December 1942	0130 0730 1430
Bhuj	23°15'	69°48'	111	14th September 1937	0130 0730 1430
Bikaner	28°00'	73°18'	228	8th October 1946	0130 0730 1430
Chikalthana	19°51'	75°24'	583	7th October 1951	0130 0730 1430
Cochin†	09°58'	76°14'	3	16th March 1942	0130 0730 1430
Darjeeling	27°03'	88°16'	2115	21st May 1956	0730 1430
Dum Dum	22°39'	88°27'	11	14th May 1921	0130 0830* 1430
Gadag	15°25'	75°38'	650	3rd May 1943	0130 0730 1430
Gauhati	26°05'	91°43'	55	12th March 1955	0130 0830* 1430
Gaya	24°45'	84°57'	113	19th March 1937	0130 0730 1430
Gopalpur	19°16'	84°53'	24	15th February 1946	0130 0730 1430
Gorakhpur	26°45'	83°22'	83	5th January 1943	0730 1430
Gwalior	26°14'	78°15'	211	7th May 1938	0130 0730 1430
Imphal	24°51'	93°58'	798	8th March 1952	0730 1430
Jabalpur	23°10'	79°57'	402	30th July 1928	0130 0730 1430
Jagdalpur	19°05'	82°02'	561	25th March 1948	0130 0730 1430
Jaipur	26°49'	75°48'	387	6th June 1953	0730 1430
Jamshedpur	22°49'	86°11'	144	23rd July 1942	0730 1430
Jharsuguda	21°55'	84°05'	234	1st May 1944	0130 0730 1430
Jodhpur	26°18'	73°01'	228	15th October 1934	0130 0830* 1430
Madras	13°00'	80°11'	29	8th April 1926	0130 0830* 1430
Mangalore	12°52'	74°51'	40	4th June 1928	0130 0730 1430
Masulipatnam	16°11'	81°08'	9	8th April 1942	0130 0730 1430
Minicoy	08°18'	73°00'	14	14th April 1941	0130 0730 1430
Mohanbari	27°29'	59°01'	110	1st June 1948	0130 0730 1430
Mussoorie	30°27'	78°05'	2050	3rd November 1955	0730 1430
Nagpur	21°09'	79°07'	316	23rd April 1943	0130 0830* 1430
New Delhi	28°35'	77°12'	227	20th October 1936	0130 0830* 1430
Poona	18°32'	73°51'	560	5th January 1925	0130 0730 1430
Port Blair	11°40'	92°43'	92	29th October 1945	0130 0730 1430
Raipur	21°14'	81°39'	308	15th July 1944	0130 0730 1430
Santacruz	19°05'	72°53'	12	14th May 1933	0130 0830* 1430
Tezpur	26°37'	92°47'	78	12th August 1932	0130 0730 1430
Tiruchirappalli	10°46'	78°43'	95	22nd June 1936	0130 0730 1430
Trivandrum	08°29'	76°57'	72	8th December 1928	0130 0730 1430
Udaipur	24°35'	73°42'	587	24th June 1947	0130 0730 1430
Vengurla	15°52'	73°38'	8	22nd November 1941	0130 0730 1430
Veraval	20°54'	70°22'	16	13th October 1941	0130 0730 1430
Visakhapatnam	17°43'	83°14'	9	24th September 1928	0130 0730 1430

*Rawin ascents.

†Naval Meteorological Office.

TABLE IV--MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds upto 9.0 km, above mean sea level

November 1956

Station	AGARTALA												AHMEDABAD																			
	0130				0730				1430				0130				0730				1430											
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D				
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	0.6	0.2	102	30	1.8	0.6	125	30	2.7	1.8	301	30	4.0	3.7	034	30	6.1	5.8	046	30	5.3	4.2	057								
15 a.g.	29	7.2	3.7	354	29	5.4	3.2	039	30	4.8	2.3	308	30	14.0	12.2	064	30	18.4	18.0	071	30	6.6	5.5	061								
3 a.m.s.l.	29	6.7	3.7	351	29	6.1	3.9	044	30	4.9	2.0	310	30	13.6	11.7	069	30	16.5	16.0	084	30	6.7	5.6	060								
6 "	29	5.9	2.7	347	29	6.1	3.6	044	30	5.1	0.6	274	30	11.5	9.9	074	30	12.2	11.3	093	30	6.3	5.3	058								
9 "	29	5.1	1.0	344	29	6.2	2.4	052	30	4.8	1.2	191	30	9.7	8.1	076	30	10.6	9.0	084	30	6.6	5.6	058								
5 "	26	5.6	2.4	190	29	6.8	2.7	204	29	5.4	2.7	201	30	8.9	4.5	100	30	7.4	4.1	070	29	6.8	4.5	061								
1 "	23	7.3	3.4	227	26	8.8	4.1	213	27	8.2	5.9	238	30	8.0	1.8	136	30	8.2	2.0	033	29	6.9	0.1	035								
0 "	18	15.3	11.9	276	26	15.5	12.3	265	23	17.0	14.3	278	24	9.2	3.7	263	30	9.3	2.2	296	28	9.0	2.9	280								
5 "					22	22.6	21.2	285	17	22.6	21.4	283	1	15.0	15.0	315	29	14.3	7.5	279	27	14.4	7.8	286								
4 "					17	23.7	22.9	279	15	23.9	22.6	280	1	19.0	19.0	315	27	16.7	12.6	272	27	18.9	10.9	278								
0 "					13	26.8	25.3	282	14	25.8	24.0	285	1	21.0	21.0	315	27	20.6	16.0	263	26	21.2	14.5	272								
2 "					5	29.8	25.6	279	10	26.8	25.5	276					15	29.6	23.6	256	23	26.9	20.9	274								
0 "									3	48.3	48.2	273					5	41.0	36.1	262	16	36.7	32.4	279								

Station	AMAUSI												AMBALA															
	0130				0730				1430				0130				0730				1430							
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	2.1	1.8	282	30	2.9	2.4	304	30	5.1	3.6	307	30	4.4	3.2	335	30	2.1	1.2	329	30	4.5	3.1	310				
15 a.g.	30	7.5	6.2	305	30	7.2	5.2	309	29	7.8	5.3	296	30	12.0	9.9	338	30	9.4	6.1	343	30	8.5	6.3	300				
3 a.m.s.l.	30	7.4	6.2	308	30	7.1	4.9	312	29	7.7	5.4	293	30	7.0	5.0	348	30	4.5	2.3	343	30	6.2	4.4	293				
6 "	30	8.2	6.5	318	30	8.6	6.4	298	29	6.7	4.7	295	30	12.1	10.4	332	30	11.4	8.2	331	30	8.3	6.1	315				
9 "	30	9.3	6.6	323	29	10.1	6.1	318	29	6.8	4.5	301	30	11.3	9.1	326	30	11.7	8.8	327	30	8.5	6.0	311				
15 "	29	10.8	6.3	310	28	12.1	7.1	312	29	9.5	6.1	301	30	10.4	8.7	321	30	9.5	6.1	331	30	8.9	5.9	322				
21 "	29	9.9	6.5	296	28	11.7	7.5	297	28	11.8	9.9	298	30	8.9	8.0	318	30	8.4	6.8	320	30	9.2	6.5	328				
30 "	26	13.3	11.3	292	26	12.4	9.3	293	28	14.3	13.3	295	30	10.1	7.5	308	29	9.1	7.4	315	30	9.1	5.8	319				
35 "					15	17.0	14.8	291	24	21.2	19.2	286	4	10.7	9.5	286	21	15.5	12.2	288	28	14.2	11.3	295				
4 "					9	20.2	19.0	269	22	27.0	24.7	283	2	19.5	19.5	260	16	23.6	19.0	277	28	20.5	15.7	287				
60 "					6	23.0	21.7	261	18	29.4	27.6	288	1	10.0	10.0	265	12	28.8	24.4	267	27	26.2	20.8	284				
72 "									9	37.4	34.8	286					4	31.0	25.2	241	25	37.4	31.2	278				
90 "									2	49.5	9.5	280									14	56.0	50.8	268				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds upto 9.0 km. above mean sea level

November 1956

Station	ANANTAPUR								ASANSOL												BAGHDOGRA											
	0730				1430				0130				0730				1430				0130											
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D				
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	2.6	2.2	064	30	5.9	5.3	069	30	3.1	2.7	319	30	3.1	2.6	311	30	3.6	2.9	332	30	3.2	2.4	01								
0.15 a.g.	28	7.4	6.1	089	30	8.8	8.3	074	30	10.8	9.0	348	28	9.5	8.3	338	30	7.2	5.9	338	29	5.0	2.9	03								
0.3 a.m.s.l.									30	11.1	9.4	352	28	9.8	8.6	347	30	7.2	5.9	339	29	4.9	2.3	03								
0.6 "	28	9.1	7.6	100	30	8.5	8.0	076	30	10.9	9.0	344	28	10.8	9.3	353	30	7.4	5.8	336	29	4.9	1.9	03								
0.9 "	28	12.6	10.7	100	29	8.2	7.6	081	30	9.8	8.0	331	28	9.1	7.5	344	30	7.9	5.8	333	30	5.5	2.0	07								
1.5 "	25	10.2	8.4	091	29	9.6	8.5	086	30	11.5	9.1	311	27	10.4	7.1	326	29	8.7	7.1	321	26	4.7	2.8	03								
2.1 "	22	8.9	6.0	086	27	9.8	7.2	094	29	11.2	7.7	310	25	10.3	4.6	322	27	12.1	10.1	308	24	5.3	2.0	03								
3.0 "	21	9.0	5.8	092	22	8.9	6.3	108	23	14.5	11.2	287	23	14.7	11.8	292	26	17.0	15.0	297	11	7.3	0.9	33								
4.5 "	20	10.8	6.3	091	18	10.7	6.0	105					13	17.7	16.3	297	19	19.6	17.6	281												
5.4 "	20	10.9	5.0	081	17	11.3	4.8	103					7	19.1	17.4	289	14	22.5	20.9	283												
6.0 "	18	11.7	2.6	061	13	11.1	2.6	146					3	19.3	18.8	273	12	24.4	23.0	286												
7.2 "	11	14.0	5.8	265	6	9.5	5.2	145					2	16.5	15.8	263	5	26.2	24.2	278												
9.0 "	4	11.7	2.9	290	2	7.0	6.3	190					1	15.0	15.0	295	1	42.0	42.0	275												

Station	BAGHDOGRA								BAIRAGARH												BAMRAULI							
	0730				1430				0130				0730				1430				0130							
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	1.9	1.4	007	30	3.2	2.4	219	30	1.8	1.2	055	30	2.2	2.1	059	30	3.6	2.1	029	30	0.8	0.7	20				
0.15 a.g.	29	4.9	3.6	050	29	4.7	3.2	216	23	9.6	8.4	081	21	11.5	10.8	090	22	4.5	2.9	026	30	5.3	3.7	3				
0.3 a.m.s.l.	29	4.9	4.0	075	29	4.8	3.5	220													30	5.4	3.6	3				
0.6 "	29	4.9	4.1	079	29	4.8	3.2	219	23	8.9	7.5	083	21	9.9	9.1	084	22	4.5	3.1	028	28	6.8	5.5	3				
0.9 "	28	4.9	4.1	082	29	4.3	2.3	217	23	8.4	7.1	072	21	9.4	8.6	066	22	5.5	4.4	024	28	8.1	6.8	30				
1.5 "	28	6.2	5.1	083	29	4.2	1.1	123	23	7.4	3.7	016	21	8.1	5.9	035	21	5.5	4.1	017	29	10.8	9.5	20				
2.1 "	28	6.5	4.6	094	29	7.3	1.6	067	23	10.6	5.7	302	20	11.4	7.0	339	20	8.9	4.9	338	26	9.3	7.5	2				
3.0 "	24	9.8	0.7	149	28	12.1	4.9	312	23	10.2	6.8	283	19	11.2	7.1	296	20	11.5	6.9	296	22	12.5	11.1	2				
4.5 "	18	27.2	24.5	285	23	24.7	23.9	283	3	11.3	8.1	306	19	14.7	9.4	307	18	15.7	11.1	303								
5.4 "	15	31.5	30.0	280	18	31.1	29.4	287	1	14.0	14.0	320	18	18.8	14.6	297	18	18.1	13.5	304								
6.0 "	8	37.5	37.2	288	12	30.8	29.8	283					16	19.8	16.0	285	18	19.5	14.9	301								
7.2 "	1	24.0	24.0	280	7	31.1	30.8	295					11	24.8	22.4	284	15	27.3	22.7	297								
9.0 "					4	40.8	39.8	292					3	35.3	30.3	291	15	33.5	30.2	281								

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

November 1956

Station	BAMRAULI												BANGALORE											
	0830*				1430				2030*				0130				0730				1430			
	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	1.7	1.2	265	30	3.4	2.4	314	30	0.6	0.3	285	30	6.3	5.1	093	30	6.1	5.1	079	30	6.2	4.6	079
15 a.g.	30	4.2	2.0	280	29	5.9	4.7	306	30	3.4	2.5	315	26	12.3	10.9	085	28	11.0	9.1	083	29	7.8	5.9	072
3 a.m.s.l.	30	4.6	2.1	287	29	6.4	4.9	309	30	4.0	3.0	316												
6 "	30	6.5	3.5	299	29	6.0	4.5	302	30	5.9	4.8	309												
9 "	30	7.4	4.0	321	29	6.7	5.1	301	30	7.3	5.9	302												
15 "	29	9.2	5.1	310	29	8.7	6.7	301	30	9.8	8.4	293	18	13.5	11.3	078	24	12.0	9.6	084	29	9.2	7.8	080
21 "	29	10.0	7.1	291	29	10.7	8.6	299	30	10.8	8.6	293	8	11.7	8.0	080	19	10.1	7.8	083	26	8.7	7.7	082
30 "	28	11.5	8.9	268	28	13.7	12.7	293	30	13.4	12.3	284	5	12.0	11.5	084	15	10.5	8.7	109	11	9.2	5.8	082
5 "	25	17.6	15.2	273	26	20.6	18.4	288	28	18.8	17.1	290	2	10.0	9.7	079	11	9.7	4.9	095	2	6.5	5.5	074
4 "	25	22.5	20.2	270	23	24.8	22.9	290	28	23.0	21.0	281	2	15.0	14.9	082	6	9.2	6.7	077	2	11.0	11.0	100
0 "	24	26.2	23.8	270	19	27.2	24.4	289	26	26.2	24.2	277					6	10.2	5.6	069	2	9.0	5.9	082
2 "	23	33.8	31.9	269	16	34.3	31.8	284	26	34.7	32.5	271					4	11.3	1.9	107	1	15.0	15.0	240
0 "	23	43.0	40.7	263	7	46.7	40.4	292	25	44.6	42.4	267					2	20.0	18.3	247				

Station	BAREILLY								BEGUMPET								BHAGALPUR							
	0730				1430				0130				0730				1430				0730			
	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	1.8	1.6	291	30	2.7	2.5	298	30	2.0	1.7	107	30	1.7	1.3	094	30	4.1	3.1	091	30	2.5	1.6	267
15 a.g.	30	8.1	6.6	309	30	6.3	5.3	298	30	10.2	8.7	086	30	8.3	6.7	089	30	7.0	5.6	088	29	8.0	6.0	306
3 a.m.s.l.	30	7.4	5.6	312	30	6.1	5.1	298													29	8.6	6.9	320
6 "	30	10.1	7.8	302	30	6.6	5.4	300	30	6.5	5.6	083	30	5.9	4.7	088	30	6.5	5.0	087	28	8.3	6.9	326
9 "	30	10.1	7.2	304	30	7.7	5.8	305	30	11.3	10.0	264	28	10.1	8.4	096	30	6.8	5.4	084	28	7.7	5.1	330
15 "	30	9.4	5.0	335	30	8.9	4.7	310	29	9.5	7.6	101	24	10.0	7.8	083	30	8.3	6.2	084	28	7.9	2.8	349
21 "	28	10.0	4.5	331	30	9.1	5.6	308	26	8.9	6.1	095	22	9.5	3.8	085	27	8.6	5.5	082	26	9.0	2.3	012
30 "	28	11.9	8.0	307	30	11.8	9.4	301	25	8.0	3.7	113	21	8.1	5.1	086	16	7.6	4.7	078	24	14.6	10.3	300
5 "	25	20.0	16.1	290	29	21.1	18.4	294	3	9.0	4.2	269	20	10.5	4.3	088	13	11.3	5.8	091	19	19.7	18.2	283
4 "	21	24.7	21.8	287	27	28.9	25.6	284	2	11.5	8.0	280	19	11.8	2.8	082	13	12.5	3.4	073	14	18.1	16.3	275
0 "	16	25.9	23.2	288	26	32.0	28.7	284	1	15.0	15.0	280	15	12.9	1.5	010	13	12.5	1.2	049	12	22.8	21.2	278
2 "	2	24.0	21.3	308	18	43.2	38.4	286					4	14.5	9.1	282	11	14.7	4.4	273	2	31.5	22.4	297
0 "	1	56.0	56.0	270	3	45.7	41.1	281									10	21.3	17.7	274	1	49.0	49.0	341

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

November 1956

Station	BHAGALPUR				BHUBANESHWAR												BHUJ						
	1430				0130				0730				1430				0130				0730		
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface .	30	3.5	3.1	280	30	2.6	1.6	335	30	4.2	3.5	360	30	4.9	3.2	033	30	0.5	0.4	082	30	0.1	0.1
0.15 a.g.	28	7.0	6.5	295	30	6.7	3.0	069	30	8.9	7.0	022	30	6.2	3.8	030	30	8.6	6.7	026	30	7.1	5.4
0.3 a.m.s.l.	28	7.2	7.0	297	30	6.9	3.2	066	30	8.5	5.9	043	30	6.3	4.0	032	30	9.7	7.7	030	30	8.3	7.1
0.6 "	28	8.2	7.3	300	30	7.3	3.7	027	30	9.0	6.4	052	30	6.0	4.3	028	30	10.7	8.1	044	30	10.3	8.1
0.9 "	28	8.1	6.5	305	30	7.4	4.4	359	29	9.0	7.0	036	30	6.2	4.1	020	30	10.5	7.7	060	30	9.9	7.2
1.5 "	28	8.0	2.7	314	29	7.9	4.8	341	29	7.7	5.4	015	27	7.2	5.5	013	30	8.0	4.4	074	30	9.0	5.7
2.1 "	27	9.0	4.1	310	26	7.3	4.7	316	28	8.0	4.6	324	23	10.7	8.0	329	30	7.3	1.5	070	30	8.5	4.0
3.0 "	24	17.2	15.4	301	24	7.9	5.7	278	26	10.1	5.7	294	19	12.2	10.0	318	28	8.7	3.9	009	29	7.9	2.5
4.5 "	20	24.3	22.4	287	6	11.5	10.8	280	23	9.8	6.9	278	9	12.9	11.2	294	11	12.0	8.0	267	28	13.1	6.2
5.4 "	19	27.7	26.9	286					18	11.6	8.3	286	8	12.6	11.5	283	4	21.0	20.1	237	28	16.9	10.2
6.0 "	19	31.8	30.5	282					15	13.0	8.5	279	7	13.4	9.4	264	2	17.0	16.5	244	28	19.8	13.2
7.2 "	13	39.7	37.6	280					4	25.4	20.4	284	4	18.0	17.1	255					19	26.5	24.4
9.0 "	4	46.5	46.2	273					1	55.0	55.0	240	2	17.5	17.1	290					7	32.6	31.7

Station	BHUJ				BIKANER												CHIKALTHANA								
	1430				0130				0730				1430				0130				0730				
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v		
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v		
Surface .	30	3.6	3.2	035	30	C	A	L	M	30	C	A	L	M	30	0.5	0.3	315	30	2.4	2.2	097	30	1.3	1.3
0.15 a.g.	30	5.5	4.6	030	30	9.1	4.9	068	30	10.5	5.8	136	30	3.7	1.5	315	29	11.3	10.4	087	29	9.0	8.4		
0.3 a.m.s.l.	30	5.8	4.8	032	30	8.6	4.1	090	30	9.1	5.5	143	30	4.0	1.5	310									
0.6 "	30	6.9	5.6	042	30	7.5	2.3	042	30	8.3	2.0	110	30	4.3	2.0	311									
0.9 "	30	7.1	5.7	045	30	6.1	1.4	257	30	6.9	0.9	010	30	4.5	2.0	302	29	13.3	12.1	091	28	11.6	10.6		
1.5 "	30	7.2	4.6	047	30	7.9	5.9	257	30	7.2	4.7	307	30	6.0	2.9	305	28	9.2	7.2	101	28	8.2	5.8		
2.1 "	30	7.1	2.0	056	30	9.0	6.1	290	30	9.2	6.3	326	30	6.0	3.9	299	26	6.4	2.1	124	27	6.1	2.1		
3.0 "	30	8.4	1.5	305	30	12.6	9.2	306	30	10.3	7.2	294	30	11.0	9.3	293	23	8.9	1.0	136	26	8.3	0.5		
4.5 "	30	13.6	7.3	274	5	15.0	12.8	336	29	19.1	14.1	290	30	20.1	16.4	283	4	15.3	13.0	239	21	12.9	1.8		
5.4 "	30	17.1	10.2	275					26	23.4	16.8	285	30	26.1	21.8	278	1	21.0	21.0	260	20	13.5	2.7		
6.0 "	30	20.3	13.3	273					19	25.0	14.1	288	27	27.7	22.6	273					20	15.7	6.2		
7.2 "	25	26.8	20.8	267					10	29.1	25.2	261	24	33.4	33.3	271					9	16.7	14.2		
9.0 "	18	39.7	33.8	258					1	39.0	39.0	305	7	43.1	36.9	281					3	27.0	20.3		

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

November 1956

Station	CHIKALTHANA				COCHIN								DARJEELING											
	1430				0130				0730				1430				0730				1430			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	3.9	2.6	088	30	1.8	1.6	070	30	1.6	1.4	058	30	6.8	5.8	263	30	0.4	0.1	195	30	0.7	0.6	225
0.15 a.g.	29	6.3	4.9	090	24	5.6	4.0	087	30	5.4	4.3	071	30	6.8	1.2	251	25	3.1	1.7	077	12	3.7	3.5	227
0.3 a.m.s.l.					24	4.9	2.5	094	30	6.1	3.2	062	30	5.8	3.9	277								
0.6 "					24	5.4	3.0	073	30	5.6	2.6	055	30	4.8	1.8	059								
0.9 "	29	5.6	3.9	083	23	7.0	3.3	069	30	5.5	2.1	066	30	4.2	1.2	033								
1.5 "	28	5.9	3.9	077	23	9.1	6.4	079	29	6.4	3.0	085	30	5.5	2.8	075								
2.1 "	25	6.5	3.3	076	20	9.1	7.0	068	28	6.8	3.4	085	29	7.7	4.4	084								
3.0 "	19	9.6	2.4	056	17	11.1	3.0	077	27	9.9	5.4	097	25	8.5	4.0	100	25	6.2	1.8	098	10	5.3	0.4	040
4.5 "	14	13.6	2.2	029	11	12.3	6.7	127	26	9.4	5.6	095	19	10.2	5.7	095	23	20.9	15.7	282	8	8.7	6.6	285
5.4 "	11	13.0	1.9	356	5	11.8	10.8	126	22	10.2	6.7	097	15	10.5	6.0	193	16	27.5	26.6	283	6	16.2	13.3	282
6.0 "	10	13.4	0.4	253	2	11.5	8.3	119	20	12.0	7.4	081	15	11.5	7.5	089	13	24.2	22.3	284	6	20.5	19.4	290
7.2 "	8	15.7	8.6	287					17	12.8	6.1	088	13	10.1	7.5	087	10	25.5	23.6	287	5	22.2	20.2	286
9.0 "	3	28.3	27.6	278					11	10.5	4.4	173	9	12.0	4.8	128	7	32.3	30.3	297	3	32.0	26.3	283
Station.	DUM DUM								GADAG															
Time in I. S. T.	0130				0830*				1430				2030*				0130				0730			
Ht. in km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	1.9	1.5	350	30	4.2	3.3	360	30	3.3	2.7	335	30	0.8	0.4	322	30	6.2	4.4	099	30	6.5	6.1	088
0.15 a.g.	30	11.1	9.6	360	30	8.4	6.7	009	30	6.6	5.7	344	28	9.0	6.6	336	26	14.0	12.4	088	29	12.9	10.9	098
0.3 a.m.s.l.	30	10.7	8.9	359	30	8.2	6.4	010	30	7.2	5.7	341	28	8.4	6.6	337								
0.6 "	30	9.6	6.7	352	30	8.2	6.3	005	30	7.3	5.9	344	28	8.0	5.7	339								
0.9 "	30	9.0	6.6	346	30	9.0	6.4	357	30	7.7	6.0	342	28	8.0	5.1	343	26	14.7	13.1	087	29	15.1	13.2	098
1.5 "	30	8.7	3.9	334	30	9.4	5.1	324	30	9.4	6.7	335	28	9.3	5.0	321	21	14.1	13.2	082	25	12.8	10.9	089
2.1 "	26	8.2	4.7	307	30	10.6	5.9	279	28	11.2	8.1	305	28	10.5	7.1	308	19	10.4	8.2	074	22	10.8	7.5	090
3.0 "	22	13.4	9.0	275	30	14.2	10.6	287	27	14.2	12.2	308	28	13.7	11.8	297	19	7.1	4.7	088	19	7.9	5.0	084
4.5 "	1	14.0	14.0	240	30	19.2	15.8	280	22	20.4	18.8	290	27	18.0	16.8	288	8	11.0	4.7	079	17	10.9	6.7	081
5.4 "					30	20.7	19.2	280	20	22.3	20.8	285	27	21.1	19.7	287	2	11.5	7.7	150	14	11.4	5.0	040
6.0 "					30	25.2	23.8	279	19	25.6	24.0	284	27	24.4	22.9	283	2	8.5	4.7	15.2	12	13.2	4.7	030
7.2 "					30	29.9	28.1	279	14	32.0	30.0	277	27	30.1	28.5	278					9	13.6	3.5	230
9.0 "					30	43.3	41.3	270	9	38.8	36.8	270	25	40.6	39.2	269					4	16.0	14.9	253

TABLE IV.—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

November 1956

Station	GADAG				GAUHATI										GAYA									
	1430				0130				0830*				1430				2030*				0130			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . .	30	6.7	5.6	084	30	0.8	0.4	148	30	2.2	1.5	063	30	3.1	1.9	045	28	1.3	0.7	081	30	0.3	0.2	249
0.15 a. g. .	30	9.6	7.6	087	29	4.4	1.3	113	30	5.4	4.2	071	29	5.0	3.2	038	26	5.7	2.9	084	30	6.6	4.2	313
0.3 a. m. s. l. .					29	4.4	1.2	084	30	5.9	4.6	072	29	5.1	2.9	053	26	6.3	2.2	084	30	6.8	4.8	322
0.6 „ .					29	7.1	3.7	072	30	6.9	5.7	080	29	4.8	2.5	074	26	7.1	2.6	083	30	7.5	6.1	322
0.9 „ .	30	9.8	8.1	086	29	6.5	3.2	061	30	7.9	6.3	089	28	4.4	2.5	090	26	7.7	1.5	083	30	7.5	6.3	302
1.5 „ .	30	10.4	8.8	090	26	5.0	1.0	109	30	7.3	3.8	114	28	4.0	0.9	228	27	7.5	1.0	220	29	10.4	8.0	282
2.1 „ .	21	8.6	6.1	097	21	10.0	1.0	151	30	8.2	3.0	190	27	6.6	4.8	225	27	7.6	3.3	246	28	10.6	7.2	291
3.0 „ .	12	8.8	6.0	091	16	7.0	1.8	326	30	9.8	3.5	240	25	9.4	6.6	235	27	9.5	5.7	246	18	13.4	11.9	284
4.5 „ .	9	10.3	6.8	090	1	8.0	8.0	295	28	28.4	25.5	275	23	24.8	22.8	274	26	27.7	26.5	268				
5.4 „ .	9	13.3	5.8	083					28	32.2	30.3	270	17	29.0	28.5	274	26	35.8	34.5	271				
6.0 „ .	8	12.9	0.2	036					28	35.1	33.4	270	15	31.9	30.8	276	26	37.4	36.5	268				
7.2 „ .	6	17.1	6.4	117					27	43.3	41.0	270	8	33.8	31.6	277	25	43.4	41.6	264				
9.0 „ .	6	15.5	11.8	246					19	55.6	54.4	271	1	52.0	52.0	270	21	58.8	56.9	268				

Station	GAYA				GOPALPUR										GORAKHPUR									
	0730				1430				0130				0730				1430				0730			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . .	30	1.6	0.7	211	30	3.9	3.0	299	30	5.4	5.0	324	30	6.1	5.4	327	30	6.6	5.8	099	30	1.5	0.8	282
0.15 a. g. .	30	6.6	4.3	239	30	6.2	4.3	307	30	7.3	5.7	020	30	11.1	9.4	348	29	9.8	8.3	083	29	7.8	6.7	300
0.3 a. m. s. l. .	30	6.6	3.3	266	30	6.2	3.7	303	30	6.3	4.9	060	30	10.5	7.8	040	29	9.7	7.4	072	29	7.9	6.8	300
0.6 „ .	30	6.9	4.7	310	30	6.4	5.8	298	30	6.4	5.0	066	30	10.5	7.5	049	29	7.9	5.7	035	29	7.8	5.4	295
0.9 „ .	28	7.3	5.4	305	30	7.5	6.3	291	30	6.8	5.1	042	30	10.0	7.5	050	29	8.2	6.2	005	29	8.2	3.8	295
1.5 „ .	28	10.2	6.9	294	29	9.7	6.8	298	27	8.9	6.2	023	28	8.8	5.0	040	29	8.5	5.9	337	27	8.8	1.6	085
2.1 „ .	28	11.3	6.8	297	29	12.6	9.5	284	25	7.0	3.4	022	27	7.3	3.8	020	28	9.1	5.0	334	27	9.9	1.1	085
3.0 „ .	26	15.0	11.3	288	27	15.6	13.9	287	23	8.9	3.2	318	27	8.7	2.5	315	26	9.6	5.4	311	25	15.0	8.6	285
4.5 „ .	20	18.8	16.3	297	23	21.7	20.4	287	6	8.7	6.1	270	25	8.8	4.6	280	25	10.1	7.5	292	18	19.4	18.8	285
5.4 „ .	15	20.5	17.6	267	23	24.8	23.0	283	4	12.7	11.8	265	23	9.9	6.8	282	25	11.3	8.4	285	11	26.3	25.0	285
6.0 „ .	12		2.0	287	16	28.8	26.6	281	2	7.5	7.1	245	23	12.7	7.7	287	24	12.2	9.7	275	7	27.0	23.9	275
7.2 „ .	2	26.5	26.0	301	8	34.6	31.7	266					16	16.3	11.5	274	21	17.7	13.9	269	3	28.7	24.6	255
9.0 „ .	2	35.0	35.0	295	1	35.0	35.0	280					8	15.9	14.7	267	14	24.4	23.0	261				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds up to 9.0 Km. above mean sea level

November 1956

Station	GORAKHPUR				GWALIOR								IMPHAL											
	1430				0130				0730				1430				0730				1430			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	3.2	1.8	248	30	0.3	0.2	135	30	6.3	0.4	249	30	2.3	1.7	334	30	1.4	0.8	183	30	3.4	3.0	217
0.15 a.g.	29	5.8	3.5	271	30	5.1	2.6	025	30	5.5	2.1	312	30	5.5	4.5	335	29	3.2	2.2	161	30	4.4	4.0	209
0.3 a. m.s.l.	29	5.8	3.5	272	30	4.6	1.4	007	30	4.6	2.1	291	30	4.9	4.6	339								
0.6 "	29	6.7	4.0	281	30	5.1	3.9	358	30	6.0	4.1	355	30	5.7	4.5	334								
0.9 "	29	7.4	4.0	289	30	6.8	5.8	333	30	7.1	5.0	353	30	6.5	5.1	333	29	3.0	2.1	158	30	4.6	3.9	212
1.5 "	29	8.8	1.5	356	30	9.2	8.1	317	29	11.1	9.6	203	30	8.4	7.3	327	28	4.5	1.1	078	30	5.2	4.1	218
2.1 "	28	10.7	3.7	309	30	10.3	8.8	312	29	11.9	9.8	316	30	10.6	8.8	317	25	6.8	3.4	190	28	5.8	4.6	243
3.0 "	28	16.4	13.6	292	30	12.9	10.7	294	29	14.3	11.1	301	29	14.8	12.7	300	23	9.6	7.1	225	26	10.4	8.7	256
4.5 "	27	21.5	20.4	288	2	48.5	48.4	289	26	19.9	16.1	285	29	21.7	14.5	285	18	20.3	18.6	271	21	23.5	22.0	278
5.4 "	24	28.7	27.2	292					25	25.2	21.4	287	29	26.0	22.2	282	10	21.2	18.3	260	12	23.7	21.8	275
6.0 "	21	32.9	31.9	290					21	26.5	23.8	278	27	30.0	26.2	283	9	22.4	19.3	251	10	25.9	24.0	271
7.2 "	17	36.8	35.0	287					4	27.8	27.5	260	26	37.9	33.5	278	1	15.0	15.0	320	5	23.8	23.0	272
9.0 "	7	44.6	43.2	284									21	47.8	41.7	275								

Station	JABALPUR												JAGDALPUR											
	0130				0730				1430				0130				0730				1430			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	0.3	0.3	153	30	1.0	0.4	152	30	2.0	1.7	024	30	0.8	0.7	075	30	1.0	0.5	034	30	2.0	0.8	028
0.15 a.g.	30	6.9	6.0	055	30	6.4	2.7	085	30	5.2	4.4	008	30	8.0	6.7	060	30	6.2	5.4	063	30	4.5	2.6	010
0.3 a. m.s.l.																								
0.6 "	30	7.2	6.4	052	30	8.0	5.1	067	30	5.2	4.5	008	30	3.9	2.4	052	30	3.2	2.0	055	30	3.1	1.8	012
0.9 "	30	6.8	6.0	036	28	8.1	7.1	041	30	5.5	4.3	003	30	8.6	7.5	070	30	8.1	6.4	068	30	5.4	2.8	027
1.5 "	30	8.5	5.9	328	27	8.5	6.3	004	29	6.6	4.8	340	29	5.3	3.0	073	29	6.6	3.0	052	30	5.3	3.2	011
2.1 "	28	9.3	6.7	313	26	11.3	7.9	313	28	9.9	7.3	305	26	6.0	0.4	335	28	7.4	2.8	026	29	6.3	2.7	008
3.0 "	27	12.7	9.2	289	26	12.7	9.9	288	26	12.4	10.1	291	25	8.2	2.9	323	28	8.8	1.9	015	23	6.8	1.5	093
4.5 "	9	17.0	11.9	276	26	17.0	12.8	279	24	17.1	14.7	289	13	9.5	4.7	287	28	8.9	2.6	257	20	8.5	4.8	287
5.4 "	2	14.5	14.3	267	24	18.4	15.5	285	22	19.6	17.6	291	8	18.0	10.3	287	26	10.5	5.6	265	19	10.3	6.8	287
6.0 "	1	16.0	16.0	260	22	19.5	17.2	271	20	22.3	20.8	292	6	18.1	15.3	271	26	12.4	8.0	256	19	13.4	11.1	264
7.2 "					15	22.3	21.1	271	18	31.6	27.4	287					21	15.0	10.6	254	16	20.2	17.7	263
9.0 "					6	38.5	37.7	274	13	44.0	38.1	273					13	23.5	18.8	251	12	28.8	26.6	260

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9 (Km. above mean sea level)

November 1956

Station	JAIPUR								JAMSHEDPUR								JHARSUGUDA							
	0730				1430				0730				1430				0130				0730			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	1.1	0.8	063	30	2.3	1.0	311	30	2.2	1.7	294	30	3.2	2.7	324	30	3.9	3.3	025	30	4.3	3.8	0
0.15 a.g.	30	5.9	2.3	083	30	5.5	2.2	326	30	5.6	4.4	311	30	5.5	4.5	320	30	8.3	6.2	041	30	11.4	10.0	0
0.3 a. m. s. l.									30	5.6	4.3	324	30	5.5	4.4	322	30	7.6	6.3	032	30	9.1	8.2	0
0.6 "	30	5.6	1.2	084	30	5.5	2.4	322	29	6.1	4.2	007	30	5.7	4.4	331	30	6.9	3.7	037	30	9.8	8.3	0
0.9 "	30	4.6	1.2	311	30	4.6	2.6	318	28	6.2	4.6	005	30	6.1	4.4	333	30	6.0	1.9	011	30	7.6	3.9	0
1.5 "	30	6.8	4.5	336	30	5.4	4.2	331	28	6.8	5.0	326	29	7.8	5.9	325	30	7.1	2.5	334	30	7.6	2.9	3
2.1 "	28	9.9	7.8	320	30	8.0	6.5	329	28	10.7	6.3	302	27	11.6	9.4	302	28	9.8	7.9	313	29	10.3	7.4	3
3.0 "	28	12.8	7.9	313	30	12.2	9.4	295	28	13.3	12.1	292	27	16.0	13.9	291	25	12.5	9.7	290	29	11.9	9.5	2
4.5 "	24	19.7	14.8	286	29	21.6	17.9	300	23	17.5	15.4	278	24	18.8	18.0	280	2	17.3	17.1	254	22	15.4	12.0	2
5.4 "	12	21.8	14.1	288	22	32.8	24.9	274	18	18.1	14.7	286	21	22.2	21.3	277					18	16.6	13.3	2
6.0 "	5	18.8	16.6	292	12	37.8	27.7	294	14	21.7	19.5	289	15	22.2	21.0	278					12	15.7	11.5	3
7.2 "					2	42.5	39.3	265	4	31.0	29.4	303	13	30.5	29.7	275					4	16.2	13.2	2
9.0 "									1	33.0	33.0	290	5	34.2	33.2	271								

Station	JHARSUGUDA				JODHPUR												MADRAS							
	1430				0130				0830*				1430				2030*				0130			
Time I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	3.1	1.6	348	30	4.3	4.1	040	29	4.1	4.1	039	30	3.0	1.4	037	23	3.2	3.0	037	30	4.0	2.6	3
0.15 a.g.	30	4.2	2.3	006	30	9.9	7.2	088	29	4.8	4.3	042	28	4.4	0.9	030	23	4.4	3.9	038	29	10.7	8.5	0
0.3 a. m. s. l.	30	4.4	2.5	002	30	8.6	7.2	073	29	4.4	4.1	038	28	4.3	1.4	021	23	4.0	3.8	037	29	12.0	9.9	0
0.6 "	30	4.3	2.4	002	30	9.0	6.2	092	29	5.3	4.3	050	28	5.2	2.1	040	23	5.7	4.4	046	28	13.1	11.6	0
0.9 "	30	4.8	2.7	353	30	7.4	4.0	088	29	6.4	4.5	070	28	5.0	2.3	050	23	7.5	5.5	054	27	13.5	11.2	0
1.5 "	30	7.3	4.8	336	30	6.4	1.1	034	29	6.7	3.6	036	29	5.1	1.8	033	23	7.6	4.7	060	23	11.7	9.1	0
2.1 "	28	10.4	8.8	319	30	8.5	3.6	351	29	7.5	4.4	355	30	5.8	2.5	324	23	7.1	3.3	006	18	10.6	8.1	0
3.0 "	28	11.6	10.0	296	28	11.0	6.7	313	29	10.0	5.4	309	29	10.9	7.1	287	23	11.9	9.3	294	16	11.2	8.9	0
4.5 "	23	15.9	14.2	288	7	18.7	17.0	281	27	19.0	13.1	280	29	21.4	19.7	277	21	21.2	17.4	278				
5.4 "	18	17.5	15.2	290	2	16.5	16.4	284	25	25.2	20.3	274	29	25.5	21.6	271	21	27.2	23.2	271				
6.0 "	13	16.9	15.8	278	2	20.0	18.1	297	25	29.2	23.8	273	29	28.5	24.8	268	21	30.8	26.3	270				
7.2 "	11	24.1	23.2	272					25	40.5	34.4	268	27	34.9	30.7	268	19	42.6	38.3	262				
9.0 "	6	36.7	35.4	269					25	51.2	44.4	265	17	48.1	42.6	264	17	55.1	51.8	260				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

November 1956

Station	MADRAS												MANGALORE											
Time in I. S. T.	0830*				1430				2030*				0130				0730				1430			
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	6.3	4.4	025	30	8.8	7.2	049	29	6.2	4.6	045	30	5.1	4.6	088	30	6.7	6.4	096	30	6.8	4.7	256
15 a. g.	30	11.0	7.7	036	28	12.4	10.0	058	29	12.8	11.1	049	30	6.2	3.3	066	30	10.7	9.3	096	30	8.6	5.1	261
3 a. m. s. l.	30	11.6	8.1	041	28	12.5	10.0	056	29	13.4	11.7	050	30	6.1	1.6	050	30	11.4	8.0	100	30	7.8	2.6	260
6 "	30	13.4	9.8	048	26	12.8	10.6	052	29	14.1	12.2	052	30	7.4	2.7	076	30	10.7	6.8	098	30	6.4	1.9	198
9 "	30	14.9	9.3	044	25	12.0	10.7	053	29	14.1	12.0	054	30	8.7	5.0	097	30	10.8	6.6	098	30	7.2	4.0	108
12 "	30	15.3	12.4	064	24	11.0	9.3	050	29	12.5	10.2	062	28	10.3	8.7	105	29	9.8	6.2	103	30	10.0	7.4	093
15 "	29	13.4	11.3	082	22	9.8	7.8	068	29	11.6	9.3	077	25	10.8	8.5	10	27	9.4	5.7	104	30	10.2	7.7	091
18 "	29	13.1	10.5	094	15	10.3	6.8	071	29	13.2	10.0	093	16	10.6	5.5	105	24	9.7	6.8	095	27	8.6	5.9	095
21 "	29	13.2	10.6	100	11	10.9	5.5	106	28	12.7	8.7	093	8	7.9	3.5	092	19	10.9	6.2	104	29	10.5	6.6	096
24 "	29	14.3	10.7	103	8	10.3	3.2	148	27	12.7	7.9	098	2	7.5	5.4	142	17	12.3	6.2	113	22	11.1	5.4	092
27 "	27	15.4	10.7	105	6	11.2	1.9	105	26	12.3	7.1	100	1	7.0	7.0	195	15	13.1	7.5	130	19	12.1	5.5	080
30 "	27	14.2	5.5	199	5	16.0	4.3	294	24	12.2	3.3	119					8	13.6	3.4	085	15	13.1	1.6	078
0 "	24	15.3	6.2	157	3	17.0	4.4	070	23	15.5	6.6	172					4	22.3	17.4	280	11	19.6	6.4	290

Station	MASULIPATNAM												MINICOY											
Time in I. S. T.	0130				0730				1430				0130				0730				1430			
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	5.7	4.5	049	30	5.3	4.5	033	30	6.9	5.8	097	30	2.4	0.7	333	30	2.9	1.9	066	30	5.0	2.0	335
15 a. g.	28	10.6	9.5	074	29	11.7	10.4	056	30	8.4	7.5	084	29	5.6	2.3	346	28	5.7	2.4	351	29	7.4	3.9	324
3 a. m. s. l.	28	11.9	10.9	081	29	13.2	11.6	072	30	9.4	8.5	082	29	6.5	2.3	346	28	5.7	2.7	357	29	7.5	3.6	334
6 "	28	12.8	11.5	082	29	13.5	11.6	083	30	10.6	9.2	062	29	6.9	2.2	001	28	6.6	3.1	011	29	7.5	2.9	355
9 "	28	11.2	9.9	075	29	12.2	10.1	084	30	10.7	8.7	062	29	7.8	3.0	061	28	6.8	3.4	039	29	7.5	2.5	034
12 "	27	9.9	7.7	059	29	10.3	7.3	074	26	9.6	6.3	052	29	8.3	5.2	075	27	8.1	4.7	074	26	7.0	1.9	060
15 "	24	10.5	6.1	076	27	10.4	6.2	085	24	8.5	5.4	079	27	9.1	6.6	082	27	8.6	5.6	086	22	6.9	2.3	097
18 "	18	8.0	4.9	100	26	9.0	5.7	098	18	8.9	5.8	078	22	10.4	7.4	100	24	7.4	4.3	112	17	9.0	2.2	098
21 "	3	5.0	0.4	015	20	9.9	5.0	091	15	9.3	2.9	066	13	10.0	8.3	078	21	9.1	5.3	108	13	9.0	5.1	113
24 "	1	9.0	9.0	240	16	10.7	4.5	092	14	9.2	1.9	061	9	10.7	9.1	102	17	8.8	6.5	096	12	11.1	7.3	105
27 "	1	13.0	13.0	260	15	10.9	2.7	076	13	12.5	3.7	248	8	11.6	10.7	100	14	8.8	5.7	093	11	9.5	7.3	084
30 "					6	9.3	5.0	239	6	15.5	5.2	297	4	12.0	7.4	072	12	9.4	7.1	087	1	31.0	31.0	295
0 "					4	17.5	17.5	249	5	21.2	14.8	279	1	11.0	11.0	115	11	11.3	6.3	104	4	15.5	3.8	074

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

November 1956

Station	MOHANBARI												MUSSOORIE												NAGPUR		
	0130				0730				1430				0730				1430				0130						
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v				
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v				
Surface . . .	30	0.6	0.6	057	30	1.4	1.1	042	30	0.6	0.6	057	30	0.8	0.5	177	30	3.2	3.0	207	30	3.7	3.				
0.15 a.g. . .	27	5.7	4.9	057	28	7.0	6.3	050	29	3.3	1.8	044	29	4.1	2.1	159	25	4.6	3.4	200	30	10.3	9.				
0.3 a.m. s.l. .	27	5.3	4.7	053	28	7.1	6.4	044	29	3.4	2.1	047															
0.6 " . . .	27	4.3	3.8	045	28	6.1	5.6	037	29	3.0	2.0	075									30	10.0	9.				
0.9 " . . .	27	4.5	3.8	051	28	5.3	4.8	049	28	2.8	1.8	075									30	7.7	6.				
1.5 " . . .	26	3.3	1.4	044	27	4.4	2.7	057	28	3.7	2.5	192									29	6.0	1.				
2.1 " . . .	25	4.2	0.6	151	26	3.1	0.5	109	25	5.2	4.2	199	29	3.5	1.6	162	25	5.2	4.5	201	28	6.8	2.				
3.0' " . . .	23	5.6	2.1	228	25	5.8	3.6	157	23	7.7	2.7	188	29	5.4	1.1	066	24	5.4	2.0	098	27	10.4	4.				
4.5 " . . .	1	15.0	15.0	220	18	12.2	5.2	269	17	12.1	7.9	271	29	12.5	8.7	284	21	11.7	6.0	292	14	11.3	8.				
5.4 " . . .					16	20.7	17.0	273	17	20.2	17.5	275	28	21.8	18.8	280	20	18.9	13.2	284	3	10.7	8.				
6.0 " . . .					14	25.6	21.8	284	16	26.0	22.2	274	28	26.7	23.4	278	20	24.0	18.5	277							
7.2 " . . .					10	38.3	35.5	274	11	38.4	34.1	278	25	39.0	34.4	277	19	34.5	30.8	272							
9.0 " . . .					2	48.0	47.9	263					10	36.3	34.7	269	14	58.6	56.5	271							

Station	NAGPUR												NEW DELHI											
	0830*				1430				2030*				0130				0830*				1430			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	30	3.7	3.1	025	30	5.2	3.5	037	21	3.1	2.7	063	30	1.9	1.5	285	30	3.7	3.1	299	30	6.9	6.1	
0.15 a.g. . .	30	4.9	3.9	030	30	6.0	5.0	027	21	4.0	3.5	059	30	7.7	5.3	340	29	5.0	4.2	306	30	8.5	7.3	
0.3 a.m. s.l. .													30	6.8	3.9	317	29	4.6	4.0	303	30	8.8	7.7	
0.6 " . . .	30	5.7	4.2	046	30	5.3	4.8	035	21	4.8	4.1	052	30	8.5	6.8	339	29	7.3	6.2	313	30	7.7	6.2	
0.9 " . . .	30	7.0	4.8	064	30	5.2	4.0	036	21	6.4	5.1	040	30	10.2	8.7	320	29	9.5	7.9	319	30	8.3	6.6	
1.5 " . . .	30	7.0	2.0	036	30	5.7	3.2	360	21	8.2	4.6	006	30	11.7	11.1	318	29	12.9	11.6	324	30	10.8	9.1	
2.1 " . . .	30	7.5	1.3	289	28	7.1	3.0	330	21	8.5	4.0	323	30	11.5	10.1	308	29	12.9	11.7	324	30	11.3	10.3	
3.0 " . . .	30	9.5	3.3	263	25	10.3	5.4	287	21	10.0	5.0	256	27	12.3	10.8	296	29	13.6	11.4	305	30	12.9	11.6	
4.5 " . . .	30	12.6	7.9	260	23	13.1	8.8	287	20	14.1	10.4	270	2	12.5	12.0	264	29	19.0	16.2	287	29	21.2	18.4	
5.4 " . . .	29	14.5	10.0	260	21	14.2	10.2	288	20	16.2	12.2	278	1	39.0	39.0	245	28	25.6	22.4	282	29	27.9	24.5	
6.0 " . . .	28	16.3	11.8	261	20	15.9	11.3	289	19	18.1	13.5	278					29	30.4	26.3	278	29	32.3	28.0	
7.2 " . . .	27	21.3	17.6	259	20	20.6	15.5	288	18	23.1	19.4	263					29	40.0	35.4	273	28	40.9	36.0	
9.0 " . . .	25	26.4	23.2	256	20	32.3	28.7	273	15	29.7	26.4	258					28	54.8	50.0	270	25	50.2	46.6	

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

November 1956

Station	NEW DELHI				POONA												PORT BLAIR							
	2030*				0130				0730				1430				0130				0730			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	3.5	2.7	317	30	0.8	0.4	181	30	1.2	1.2	085	30	2.2	1.9	083	30	3.8	3.4	073	30	4.4	3.9	075
5 a.g.	29	4.7	3.7	320	29	6.2	4.7	089	30	6.4	6.1	095	30	5.7	4.5	090	29	10.8	8.5	065	30	10.0	9.2	067
10 a.m. s.l.	29	4.3	3.3	317													29	11.1	9.1	066	30	10.8	9.9	069
15 "	29	7.0	5.9	320	29	1.8	0.8	148	30	2.8	2.2	076	30	3.8	3.1	082	29	12.0	10.5	071	30	12.6	11.7	075
20 "	29	10.2	9.0	333	29	10.0	8.7	092	30	10.6	10.3	111	30	5.4	4.5	097	29	11.6	10.5	072	30	12.9	11.8	078
25 "	29	11.0	9.6	319	27	9.7	9.0	102	27	11.1	10.0	113	30	6.4	4.6	108	26	11.9	10.3	072	24	11.5	10.3	084
30 "	29	11.4	10.0	319	25	8.2	6.9	120	26	7.7	4.5	125	28	6.7	4.1	113	18	10.1	8.4	072	21	11.0	9.5	077
1 a.m.	29	10.9	9.9	315	23	7.9	0.9	153	23	9.1	0.9	039	25	8.2	3.0	097	13	9.5	8.4	073	15	11.6	9.8	070
2 a.m.	29	18.4	15.6	298	7	9.6	3.0	290	18	11.7	3.1	048	17	10.3	1.1	115	1	12.0	12.0	105	10	11.0	9.2	081
3 a.m.	29	25.1	21.6	289	1	10.0	10.0	275	17	12.4	2.7	293	13	10.5	1.3	254					8	11.1	10.0	081
4 a.m.	28	29.1	25.3	283					15	14.0	3.9	270	12	13.0	2.7	276					8	12.6	11.3	082
5 a.m.	28	38.5	34.3	276					5	12.0	8.6	255	10	18.3	9.4	295					5	11.0	7.2	089
6 a.m.	25	51.2	47.2	271									3	27.3	23.3	272								

Station	PORT BLAIR				RAIPUR												SANTACRUZ							
	1430				2030*				0130				0730				1430				0130			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	30	5.2	4.7	074	29	10.1	8.4	072	30	2.0	1.5	046	30	2.0	1.4	016	30	1.7	1.0	012	30	1.6	1.4	058
5 a.g.	30	11.3	10.3	072	29	11.0	9.5	072	30	9.7	7.9	055	29	10.4	9.3	045	30	4.9	2.9	022	29	7.1	5.9	059
10 a.m. s.l.	30	11.5	10.6	072	29	11.3	9.8	072													29	7.8	6.3	065
15 "	30	12.7	11.5	073	29	12.5	11.3	071	30	9.1	7.1	061	29	11.4	10.1	063	30	5.6	3.5	024	29	8.5	6.4	076
20 "	30	13.2	11.9	078	29	13.9	12.5	075	30	6.0	3.8	069	29	7.6	5.9	071	30	5.7	3.2	023	29	8.1	5.8	091
25 "	27	12.8	11.5	078	29	13.9	12.0	073	30	5.3	2.0	347	29	7.2	1.7	015	30	7.2	3.9	344	29	8.3	6.4	117
30 "	19	11.7	9.8	077	29	12.9	10.9	070	30	6.8	4.7	298	28	8.3	4.2	306	29	8.1	6.2	312	29	7.4	5.5	136
1 a.m.	13	8.4	6.5	077	29	12.4	10.5	068	30	9.0	6.7	284	27	10.2	7.6	289	29	9.4	6.5	297	26	7.2	2.7	152
2 a.m.	9	10.6	8.6	066	29	13.5	11.1	072	14	11.8	9.3	264	24	15.0	11.9	286	25	14.3	11.2	284	1	17.0	17.0	240
3 a.m.	5	9.2	5.7	060	29	14.3	10.3	074	5	14.2	12.4	273	22	15.8	11.3	272	24	15.5	12.8	276				
4 a.m.	5	8.2	5.5	070	28	14.6	10.3	079	4	22.5	22.0	267	21	16.8	12.9	273	23	17.6	14.1	268				
5 a.m.	3	12.0	3.8	120	27	14.7	10.2	086					16	20.6	18.5	258	19	23.9	20.3	266				
6 a.m.	3	10.3	5.0	177	24	16.3	8.3	107					8	25.0	23.8	259	12	32.1	30.3	263				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

November 1956

Station	SANTACRUZ												TEZPUR										
	0830*				1430				2030*				0130		0730		1430						
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface . . .	30	6.6	6.1	072	30	5.1	3.0	320	30	8.2	7.5	352	30	0.9	0.8	039	30	2.2	2.0	067	30	2.6	1.7
0.15 a. g. . .	28	12.5	10.9	079	30	6.6	2.7	332	29	14.7	13.7	007	30	8.9	7.9	075	29	6.2	5.8	073	29	5.3	3.4
0.3 a. m. s. l. . .	28	12.0	10.4	082	30	6.2	2.3	010	29	13.7	12.1	015	30	8.8	7.6	080	29	7.8	7.3	081	29	5.4	3.6
0.6 " . . .	28	10.9	9.1	091	30	5.9	3.4	064	29	11.7	9.2	038	30	7.5	5.7	088	28	8.2	7.3	086	29	4.5	3.4
0.9 " . . .	28	9.7	7.4	105	30	6.0	3.3	069	28	8.8	6.6	075	28	6.1	3.4	094	27	8.1	6.8	080	29	5.0	3.3
1.5 " . . .	28	7.5	4.5	115	29	6.8	2.5	066	28	9.5	7.0	087	24	4.4	2.5	070	26	6.8	6.1	085	29	4.8	2.8
2.1 " . . .	28	7.0	3.3	133	29	7.9	3.5	087	28	10.5	6.2	103	20	4.2	1.1	083	25	4.6	3.2	089	28	5.6	8.3
3.0 " . . .	28	9.9	2.1	116	28	10.2	3.5	149	28	9.5	3.2	141	12	5.0	1.0	053	25	6.3	0.7	076	26	7.1	3.2
4.5 " . . .	28	12.6	2.3	066	26	11.2	0.6	194	27	11.7	2.9	206					20	16.9	14.9	277	24	19.3	17.0
5.4 " . . .	28	13.2	0.3	161	25	12.7	2.3	256	27	13.3	2.7	260					17	25.4	23.0	272	22	29.4	27.2
6.0 " . . .	26	14.2	2.4	254	24	14.7	3.9	243	27	14.4	3.2	275					14	28.4	26.2	274	21	32.4	31.4
7.2 " . . .	25	15.7	8.1	266	21	16.7	7.8	266	26	17.2	9.2	264					5	57.8	53.1	280	19	38.8	14.6
9.0 " . . .	24	22.5	16.0	266	13	21.2	16.2	271	23	24.9	18.0	265					2	50.0	47.7	255	14	55.2	52.7

Station	TIRUCHIRAPALLI												TRIVANDRUM										
	0130				0730				1430				0130		0730		1430						
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface . . .	30	5.9	3.3	022	30	4.5	3.1	010	30	3.5	2.9	043	30	2.3	1.6	035	30	1.4	1.1	048	30	3.8	2.8
0.15 a. g. . .	21	12.8	8.4	032	27	10.0	7.3	007	22	8.0	7.3	050	30	4.9	2.5	321	30	3.9	1.9	009	29	6.7	5.3
0.3 a. m. s. l. . .	21	14.8	9.6	034	27	10.9	8.3	016	22	8.0	7.4	048	30	5.3	2.5	302	30	4.2	1.5	326	29	6.7	5.3
0.6 " . . .	21	15.3	11.0	046	27	14.1	11.4	033	22	9.5	8.5	046	30	5.7	3.0	306	30	5.1	1.5	328	29	5.9	3.3
0.9 " . . .	21	13.3	10.6	051	26	14.1	11.7	041	22	9.9	8.2	047	30	7.0	2.3	355	30	6.1	1.1	080	26	6.9	3.0
1.5 " . . .	17	10.2	9.1	060	21	11.2	9.2	050	21	10.3	8.8	053	26	8.6	4.0	060	30	7.2	3.8	055	24	8.5	5.8
2.1 " . . .	13	9.9	8.6	080	17	8.7	5.9	052	18	7.6	6.7	049	23	8.8	3.1	078	28	7.1	2.9	068	23	7.9	5.1
3.0 " . . .	9	12.2	11.6	090	12	9.3	5.7	069	14	9.5	7.2	054	22	7.9	3.8	061	25	7.4	4.1	088	14	8.6	0.4
4.5 " . . .	3	11.7	11.4	070	6	9.2	5.0	083	8	9.1	5.3	093	10	9.7	7.1	093	20	9.5	5.3	108	8	9.9	3.3
5.4 " . . .					6	6.0	2.5	086	6	10.2	9.8	089	4	16.0	13.2	085	15	10.3	7.5	104	7	10.9	5.3
6.0 " . . .					5	7.6	3.3	111	6	12.3	12.0	098	2	9.0	4.5	004	13	10.7	7.1	102	5	13.8	6.5
7.2 " . . .					1	3.0	3.0	340	5	10.6	10.1	102					8	10.4	8.6	122	4	18.5	9.7
9.0 " . . .																					2	21.5	5.7

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

November 1956

Station	TRIVANDRUM				UDAIPUR												VENGURLA									
	2030*				0130				0730				1430				0130				0730					
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D		
Height in Km.																										
Surface	22	3.3	2.0	295	30	C	A	L	M	30	C	A	L	M	30	0.4	0.1	036	30	1.0	1.0	360	30	0.9	0.8	013
5 a. g.	22	4.6	2.6	303	30	4.1	2.6	051	30	3.8	2.0	360	30	3.5	2.0	058	30	8.1	5.4	043	30	7.5	5.9	075		
1 a. m. s. l.	22	5.0	2.7	315														30	9.3	5.8	059	30	9.6	8.5	090	
„	22	5.8	2.6	010														30	10.2	7.0	074	30	10.9	9.5	095	
„	22	6.7	4.7	047	30	6.3	4.9	089	30	5.5	4.7	100	30	3.8	2.1	055	30	10.8	9.0	087	30	11.1	9.4	100		
„	22	7.8	6.6	054	30	5.9	2.5	115	30	5.7	2.8	076	30	4.4	1.8	047	29	11.4	10.1	094	29	9.7	6.8	097		
„	22	9.5	8.0	065	30	6.4	1.4	256	30	6.9	2.5	009	30	5.9	1.9	350	25	9.5	7.8	115	27	8.2	5.2	105		
„	22	10.1	7.0	067	29	9.8	5.1	296	30	8.1	2.8	309	30	9.2	3.3	282	23	8.7	4.3	121	25	8.2	4.6	087		
„	20	11.0	8.0	082	3	20.3	16.6	321	30	15.5	10.2	268	30	16.2	10.9	277	8	10.3	4.7	137	20	11.3	5.8	072		
„	19	11.5	9.4	084					29	18.2	13.4	271	29	20.6	14.0	279	2	9.0	7.1	133	19	13.7	5.6	072		
„	18	11.6	8.4	088					28	21.8	16.9	272	28	24.9	18.1	272	1	8.0	8.0	050	19	14.5	4.8	056		
„	18	15.6	7.0	097					15	28.3	26.0	272	27	33.3	25.5	276					10	11.5	0.9	040		
„	18	14.3	5.8	108					1	33.0	33.0	275	10	4.31	3.99	271					3	21.0	12.8	299		
Station	VENGURLA				VERAVAL												VISAKHAPATNAM									
Time in I.S.T.	1430				0130				0730				1430				0130				0730					
Height in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D		
Surface	30	4.3	3.2	261	30	6.9	6.4	042	30	7.8	7.3	040	30	10.1	4.5	175	30	1.6	1.1	359	30	1.6	1.2	015		
5 a. g.	30	5.7	3.5	265	30	11.6	10.4	044	30	17.5	16.6	051	30	10.4	5.4	170	30	7.2	5.8	061	30	5.7	4.8	041		
1 a. m. s. l.	30	5.5	1.9	282	30	12.2	10.8	054	30	15.0	13.7	064	30	9.1	4.1	140	30	8.5	7.0	070	30	9.0	7.7	060		
„	30	5.4	2.3	043	30	12.4	11.2	067	30	11.4	9.6	068	30	7.9	5.4	083	30	8.4	7.3	069	30	10.4	8.8	068		
„	29	7.0	5.0	076	30	11.8	10.5	073	30	9.8	7.5	071	30	8.8	7.1	064	30	8.0	7.0	060	30	9.0	7.5	062		
„	29	10.5	7.9	092	30	9.9	8.1	085	30	8.4	4.8	082	30	9.7	8.3	054	25	7.9	5.0	055	30	9.0	4.0	053		
„	28	11.3	8.5	096	30	8.1	3.8	107	30	8.9	3.6	085	29	9.2	5.3	057	25	8.4	3.5	090	30	8.3	3.7	066		
„	26	10.8	7.2	096	28	9.2	1.2	184	28	8.7	0.9	254	29	9.2	0.6	068	23	6.7	0.9	018	29	8.0	3.4	059		
„	24	9.4	4.0	097	14	10.8	1.5	237	27	10.5	1.4	272	27	10.5	2.1	266	13	8.8	2.9	315	21	7.6	1.9	348		
„	23	12.0	3.9	087	9	15.2	2.8	267	25	13.7	4.7	264	27	14.0	5.8	261	1	10.0	10.0	270	20	9.8	1.7	302		
„	22	14.0	3.9	083	6	17.5	13.0	279	24	16.0	7.1	258	25	16.4	8.7	269					17	12.4	3.7	272		
„	16	16.4	3.0	068	1	36.6	36.6	240	15	22.7	13.1	267	18	19.2	14.6	272					8	14.6	13.0	231		
„	6	25.3	8.7	317					6	28.3	25.2	267	13	30.9	26.3	271					2	16.0	14.9	236		

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

November 1956

Station	VISAKHAPATNAM			
Time in I.S.T.	1430			
Ht. in Km.	n	V	v	D
Surface . . .	30	10.2	9.2	098
0.15 a. g. . .	30	9.2	8.6	086
0.3 a. m. s. l.	30	8.9	8.2	078
0.6 „ . . .	30	8.3	7.2	044
0.9 „ . . .	30	8.1	6.9	029
1.5 „ . . .	30	8.9	5.7	015
2.1 „ . . .	30	8.4	3.3	028
3.0 „ . . .	30	8.7	1.8	040
4.5 „ . . .	29	9.2	0.3	294
5.4 „ . . .	25	9.8	4.3	253
6.0 „ . . .	25	11.3	5.8	246
7.2 „ . . .	25	14.0	9.5	256
9.0 „ . . .	19	19.6	14.7	253

TABLE V—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds above 9.0 Km. above mean sea level

November 1956

Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D										
	AGARTALA					1430 hrs.					BHUJ					DUMDUM					GOPALPUR								
	1430 hrs.				10.5	6	51.2	43.7	279		0730 hrs.					0830* hrs.					0730 hrs.								
0.5	1	73.0	73.0	245		BAMRAULI				10.5	3	33.7	32.0	265	10.5	29	51.4	49.6	265	10.5	5	22.0	20.8	264					
2.0	1	58.0	58.0	260		0830* hrs.				12.0	2	33.5	33.5	265	12.0	26	56.0	54.1	262	12.0	2	17.5	16.1	240					
	AHMEDABAD				10.5	18	51.8	47.0	266	10.5	7	43.7	37.9	251		1430 hrs.					1430 hrs.								
	0730 hrs.				12.0	12	55.6	50.5	253		BIKANER				10.5	3	41.0	40.9	257	10.5	6	33.3	31.4	260					
0.5	3	42.0	37.0	274	14.1	6	57.8	54.9	252		1430 hrs.					2030* hrs.				12.0	3	37.3	36.7	260					
2.0	1	57.0	57.0	265	16.2	1	37.0	37.0	250		1430 hrs.				10.5	1	55.0	55.0	265	10.5	21	52.2	50.1	263					
	1430 hrs.				10.5	4	60.0	53.8	276		CHIKALTHANA				12.0	18	62.7	60.0	255	14.1	2	45.5	44.0	277					
0.5	6	41.8	38.7	260		2030* hrs.					1430 hrs.					GADAG				10.5	1	33.0	33.0	290					
2.0	2	40.5	36.8	257	10.5	19	53.6	51.5	263		1430 hrs.					0730 hrs.				12.1	1	43.0	43.0	315					
4.1	1	23.0	23.0	250	12.0	15	59.9	58.3	261	10.5	1	35.0	35.0	250		1430 hrs. ¹					GWALIOR								
	AMBALA				14.1	4	49.3	45.7	268	12.0	1	41.0	41.0	245	10.5	1	4.0	4.0	330		1430 hrs.								
	1430 hrs.				16.2	1	22.0	22.0	300		COCHIN				10.5	1	25.0	25.0	220	10.5	11	51.8	46.5	285					
0.5	8	64.3	61.9	269		0730 hrs.					0730 hrs.					GAUHATI				12.0	3	64.7	57.1	296					
2.0	7	80.3	78.2	265	10.5	2	22.5	21.3	234	10.5	8	15.5	11.3	154		0830* hrs.				14.1	1	75.0	75.0	260					
4.1	5	86.2	84.6	270	12.0	2	30.0	25.9	242	12.0	4	16.7	9.4	170		JABALPUR					0730 hrs.								
6.2	3	68.7	67.4	271	14.1	2	20.5	15.9	229	14.1	2	20.5	15.9	229	10.5	17	70.0	67.9	269		1430 hrs.								
8.0	2	44.5	44.5	277	16.2	1	24.0	24.0	295	16.2	1	24.0	24.0	295	12.0	14	77.4	75.4	266		0730 hrs.								
	ANANTPUR					1430 hrs.					1430 hrs.					GAUHATI				10.5	2	42.5	42.5	270					
	0730 hrs.				10.5	1	74.0	74.0	256		1430 hrs.					0830* hrs.				10.5	5	60.0	57.4	270					
10.5	2	26.5	9.3	278		BEGUMPET				10.5	6	17.0	11.1	156	16.2	2	50.0	45.0	273		1430 hrs.								
	1430 hrs.				12.0	5	23.4	12.6	180	12.0	5	23.4	12.6	180	18.0	1	58.0	58.0	260	10.5	6	63.3	62.5	265					
	ASANSOL				14.1	2	23.0	21.5	264	14.1	2	23.0	21.5	264		2030 hrs.				12.0	2	70.0	69.9	261					
	1430 hrs.				16.2	2	9.0	8.3	263	16.2	2	9.0	8.3	263	10.5	19	71.2	68.2	260		JAGDALPUR								
10.5	1	51.0	51.0	280	18.0	2	11.0	7.1	128	18.0	2	11.0	7.1	128	10.5	16	75.8	72.5	260		0730 hrs.								
	1430 hrs.				20.0	1	4.0	4.0	278	20.0	1	4.0	4.0	278	12.0	16	75.8	72.5	260	10.5	8	28.0	22.2	235					
	BAGHDOGRA				23.0	1	42.0	42.0	225	23.0	1	42.0	42.0	225		GAYA				12.0	3	26.7	25.3	248					
	1430 hrs.					BHAGALPUR					DARJEELING					0730 hrs.				14.1	1	13.0	13.0	005					
	0730 hrs.				10.5	1	52.0	52.0	340	10.5	2	33.5	28.5	290	10.5	2	39.0	39.0	285		1430 hrs.								
10.5	2	61.0	61.0	285		BHUBANESHWAR					1430 hrs.					1430 hrs.				10.5	4	31.0	27.9	261					
	BATRAGARH				10.5	2	28.5	28.5	281	10.5	2	28.5	28.5	281	10.5	1	42.0	42.0	275	10.5	4	31.0	27.9	261					
	0730 hrs.					1430 hrs.					1430 hrs.					1430 hrs.				12.0	1	51.0	51.0	275	12.0	3	31.3	31.0	237
10.5	1	34.0	34.0	360	10.5	2	28.5	28.5	281	12.0	1	41.0	41.0	280	14.1	1	38.0	38.0	274	14.1	1	19.0	19.0	230					

TABLE V—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS

Winds above 9.0 Km. above mean sea level

November 1956

Ht. in km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D
	JAMSHEDPUR					MADRAS					MOHANBARI					NEW DELHI					TEZPUR			
	1430 hrs.					2030* hrs.					0730 hrs.					2030* hrs.					1430 hrs.			
10.5	3	37.3	36.3	268	10.5	22	21.1	8.6	188	10.5	1	71.0	71.0	245	10.5	23	62.6	56.8	273	10.5	9	67.1	64.7	2
12.0	1	43.0	43.0	261	12.0	18	21.7	11.0	185		MUSSOORIE				12.0	20	64.3	58.3	270	12.0	5	81.6	75.2	2
					14.1	13	23.9	13.4	197		0730 hrs.				14.1	14	55.5	51.2	270					
	JHARSUGUDA				16.2	7	27.1	13.6	147	10.5	4	40.3	39.2	274	16.2	8	43.6	40.3	278		TRIVANDRUM			
	1430 hrs.				18.0	3	39.7	22.0	252		1430 hrs.					PORT BLAIR					1430 hrs.			
10.5	1	31.0	31.0	285	20.0	1	10.0	10.0	140	10.5	9	79.0	74.5	271		1430 hrs.				10.5	1	30.0	30.0	2
						MANGALORE				12.0	2	83.0	79.7	298						12.0	1	32.0	32.0	2
						0730 hrs.					NAGPUR				10.5	2	15.0	13.3	144					
					10.5	3	20.7	12.9	231	10.5	22	34.0	30.6	255	14.1	1	22.0	22.0	210	10.5	17	16.8	6.5	2
	JODHPUR				12.0	1	23.0	23.0	275	12.0	20	40.9	37.5	254	16.2	1	17.0	17.0	225	12.0	17	21.4	7.7	1
	0830* hrs.					1430 hrs.				14.1	13	32.1	29.3	261	10.5	18	19.0	11.7	124	16.2	8	19.2	10.3	1
10.5	24	63.4	56.0	261	10.5	10	25.4	13.0	244	18.0	3	8.3	6.8	125	12.0	15	21.3	12.5	132	18.0	3	18.7	17.1	0
12.0	20	63.9	56.0	259	12.0	8	34.8	18.6	251	20.0	1	17.0	17.0	360	14.1	11	23.0	21.3	117	20.0	1	15.0	15.0	0
14.1	10	58.0	52.8	265	14.1	6	31.8	8.5	246	10.5	17	36.9	32.1	272	18.0	4	22.0	18.0	100					
16.2	1	54.0	54.0	260	16.2	2	18.5	11.9	217	12.0	15	45.8	40.5	267	18.0	1	30.0	30.0	090		UDAIPUR			
	1430 hrs.									14.1	9	31.0	28.6	261		RAIPUR				10.5	2	46.5	44.7	2
10.5	6	63.2	48.4	260		MASULIPATNAM				16.2	3	12.3	6.7	225	10.5	5	24.2	23.0	242		1430 hrs.			
12.0	2	37.0	35.6	300		0730 hrs.				18.0	2	11.0	10.1	215	12.0	1	17.0	17.0	255		VENGURLA			
14.1	1	43.0	43.0	315		2030* hrs.				10.5	13	37.7	36.3	250		1430 hrs.				10.5	3	37.0	31.4	2
					12.0	1	47.0	47.0	250	10.5	11	42.5	39.0	249	10.5	9	44.3	43.0	265	12.0	1	49.0	49.0	2
10.5	14	70.6	68.0	248		1430 hrs.				14.1	7	32.7	27.7	240	12.0	5	43.2	42.0	260	14.1	1	56.0	56.0	2
12.0	10	66.7	65.0	251	10.5	1	15.0	15.0	245	16.2	2	13.5	5.7	238		SANTACRÚZ								
14.1	3	56.3	55.7	250	12.0	1	27.0	27.0	235		NEW DELHI				10.5	20	31.3	22.9	269	10.5	2	30.0	30.0	2
16.2	1	39.0	39.0	250	14.1	1	21.0	21.0	210	10.5	27	65.8	58.2	270	12.0	16	41.2	30.4	288		0730 hrs.			
										12.0	23	67.5	62.1	269	14.1	10	87.9	29.1	250		1430 hrs.			
	MADRAS					MINICOY				14.1	18	53.2	49.8	269	16.2	3	14.0	11.7	256	10.5	9	43.3	35.3	2
	0830* hrs.					0730 hrs.				16.2	12	46.9	44.0	277	18.0	1	15.0	15.0	120	12.0	5	43.6	35.1	2
10.5	23	19.0	8.1	187	10.5	10	18.2	12.0	121	18.0	5	30.2	28.1	274		1430 hrs.				14.1	1	47.0	47.0	2
12.0	18	22.4	10.5	180	12.0	2	11.5	10.2	174	20.0	3	26.7	20.4	279	10.5	4	20.5	19.5	220					
14.1	14	28.9	11.7	207	14.1	2	10.5	6.9	115		1430 hrs.				12.0	2	25.5	24.0	219		VISAKHAPATNA			
16.2	11	25.6	8.6	182	16.2	1	46.0	46.0	105	10.5	22	63.2	60.0	272		2030* hrs.					1430 hrs.			
18.0	7	25.7	4.4	299		1430 hrs.				14.1	12	70.3	66.4	272	12.0	17	41.1	31.1	255	12.0	9	27.8	26.9	2
20.0	3	32.3	12.0	284	10.5	3	13.0	9.2	239	16.2	5	40.6	38.0	282	14.1	9	40.4	36.4	251	14.1	5	30.0	29.0	2
	1430 hrs.				12.0	1	29.0	29.0	275	18.0	1	17.0	17.0	280	16.2	5	40.0	36.2	242	16.2	4	18.2	11.9	2
10.5	2	20.5	5.7	338	14.1	1	31.0	31.0	295															

RADIOSONDE DATA

November, 1956

During the month, observations of upper air temperature, pressure and humidity were made at 12 stations in India as given in the list below. For a detailed description of the instruments used a reference may be made to the I.M.D. Scientific Notes Nos. 112 and 113 (Volume IX).

LIST OF RADIOSONDE STATIONS IN INDIA

S.No.	Name of station	Type of instrument used	Date of starting	Hours of routine observations in GMT during the month	Remarks
1	Allahabad	Clock type	1st October 1944	03 and 15	
2	Bombay	Clock type	7th September 1954	03 and 15	
3	Calcutta	Clock type	13th December 1946	03 and 15	Fan type used from 13th December, 1946 to 30th November, 1947.
4	Gauhati	Clock type	22nd July 1955	03 and 15	
5	Jodhpur	Clock type	17th April 1946	03 and 15	
6	Madras	Fan type	29th June 1946	03 and 15	
7	Nagpur	Fan type	1st October 1946	03 and 15	
8	New Delhi	Clock type	3rd December 1943	03 and 15	
9	Port Blair	Fan type	4th December 1949	15	
10	Trivandrum	Fan type	1st July 1947	03 and 15	03 hrs. ascent started from 11-10-56.
11	Veraval	Fan type	3rd October 1944	15	
12	Visakhapatnam	Fan type	8th December 1946	03 and 15	03 hrs. ascent started on 17th October, 1956.

RADSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(A) From Ascents at 03 Hours G. M. T.

November 1956

Standard pressure Surface mbs.	ALLAHABAD Surf. Pr. (1006 mb.)						BOMBAY (1012 mb.)						CALCUTTA (1015 mb.)					
	No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A			
			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point
Surface	30	98	291.9	297	287	287.4	30	9	297.8	301	293	294.5	30	6	296.3	301	293	290.9
1000	30	147	..	..	..	..	30	117	..	..	..	..	30	138	..	..	..	..
900	30	1050	288.5	292	285	278.2	28	1041	294.8	297	291	288.1	30	1044	289.1	294	285	283.1
850	30	1532	285.6	292	281	273.9	28	1534	291.4	295	289	285.7	30	1528	287.0	298	281	275.9
800	30	2040	284.7	289	280	265.2	28	2052	287.9	292	283	283.4	30	2038	285.5	291	282	269.3
700	30	3146	280.9	286	277	256.0	28	3173	283.0	287	279	275.3	30	3146	281.0	285	275	262.0
600	28	4406	274.1	279	269	250.4	28	4440	276.5	282	271	267.4	30	4408	273.7	280	264	260.3
500	27	5847	265.1	270	260	..	27	5900	268.5	275	261	..	29	5847	265.0	273	260	..
400	27	7546	254.0	262	247	..	26	7629	259.0	266	252	..	29	7550	254.5	266	248	..
300	27	9633	240.6	251	232	..	26	9760	245.6	255	236	..	27	9639	241.6	254	236	..
250	24	10902	232.3	249	222	..	22	11041	236.6	247	225	..	24	10881	232.0	246	219	..
200	20	12412	224.9	235	217	..	20	12559	227.1	238	217	..	23	12365	221.7	236	210	..
175	17	13265	220.8	229	213	..	17	13458	222.7	234	212	..	12	13308	217.0	230	205	..
150	14	14209	215.1	224	206	..	10	14510	220.1	229	209	..	11	14259	212.5	223	200	..
125	9	15368	209.6	222	200	..	6	15768	219.3	225	210	..						
100	7	16685	206.7	222	197	..	5	17111	217.0	221	207	..						
80																		

Standard pressure Surface mbs.	GAUHATI (1011 mb.)						JODHPUR (992 mb.)						MADRAS (1012 mb.)					
	No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A			
			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point
Surface	30	49	294.7	299	293	294.0	30	218	291.3	298	287	278.1	28	15	299.7	302	297	297.1
1000	30	146	..	..	..	..	30	147	..	..	..	..	28	118	..	..	..	..
900	30	1051	288.8	292	287	286.4	30	1054	292.0	295	287	274.1	28	1039	292.8	296	290	288.8
850	30	1534	285.7	289	283	283.1	30	1541	288.4	291	285	270.4	28	1530	290.2	293	287	285.3
800	30	2041	282.7	287	279	278.9	30	2051	285.0	289	280	266.5	28	2047	287.8	291	284	282.1
700	30	3138	276.7	283	269	268.9	29	3157	279.8	283	269	254.1	28	3169	283.0	286	276	274.4
600	29	4377	271.8	279	263	262.3	29	4410	273.5	278	267	243.8	28	4440	276.5	281	267	264.3
500	29	5811	263.9	272	256	..	28	5839	264.6	271	257	..	28	5897	268.6	274	257	..
400	27	7504	253.7	263	242	..	28	7542	252.7	263	245	..	26	7623	259.3	266	250	..
300	20	9601	240.2	250	227	..	27	9614	238.5	253	226	..	24	9764	245.3	254	227	..
250	18	10868	232.8	241	219	..	25	10868	230.3	247	218	..	22	11052	235.3	242	221	..
200	17	12378	224.4	235	212	..	22	12358	222.8	240	210	..	18	12583	226.1	232	220	..
175	13	13232	219.5	232	207	..	18	13244	220.2	233	205	..	17	13445	219.6	225	209	..
150	10	14236	215.6	228	199	..	16	14224	216.0	229	201	..	14	14449	214.6	221	208	..
125	7	15352	210.3	223	193	..	12	15350	212.1	225	195	..	12	15585	208.1	213	205	..
100	6	16752	205.7	217	189	..							11	16935	203.8	210	197	..
80													8	18263	203.3	211	194	..

RADIOSONDE DATA

TABLE IV.—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(B) From Ascents at 15 Hours G. M. T.

November 1956

Standard pressure surface mbs.	NAGPUR Surf. Pr. (978 mb.)						NEW DELHI (991 mb.)						PORT BLAIR (1003 mb.)					
	No. of obs.	Ht. gpm.	Temperature °A				No. of obs.	Ht. gpm.	Temperature °A				No. of obs.	Ht. gpm.	Temperature °A			
			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point			Mean	Max.	Min.	Dew point
Surface	24	311	295.6	299	292	287.7	30	210	287.5	293	284	284.8	29	79	299.5	301	298	297.3
1000	24	123	..	..	..	..	29	136	..	..	..	..	29	103	..	..	..	..
900	24	1038	292.3	295	290	282.6	29	1039	291.0	296	287	276.5	29	1025	293.2	296	290	290.6
850	24	1527	289.4	293	286	279.0	29	1525	287.8	292	283	272.5	29	1515	290.6	294	287	287.1
800	24	2040	286.7	291	283	273.4	29	2035	284.9	288	282	267.9	29	2032	288.2	291	284	282.9
700	24	3157	282.0	285	279	265.8	29	3141	279.9	283	273	259.3	29	3154	283.1	287	280	274.1
600	23	4418	275.3	278	271	260.6	29	4390	272.3	276	264	254.3	29	4420	275.7	281	271	269.6
500	23	5855	266.6	271	263	..	29	5822	262.7	267	258	..	29	5875	267.9	273	259	..
400	21	7575	256.0	263	249	..	29	7504	251.8	257	245	..	28	7597	258.1	264	246	..
300	20	9672	241.3	249	236	..	27	9564	237.4	245	226	..	24	9710	243.3	251	228	..
250	16	10931	231.7	245	225	..	25	10812	229.9	241	219	..	19	10973	233.4	244	219	..
200	16	12416	222.0	231	214	..	24	12291	222.1	228	214	..	17	12458	221.0	229	212	..
175	14	13282	216.5	225	211	..	23	13148	218.3	224	209	..	12	13279	214.9	223	207	..
150	12	14257	210.1	217	205	..	20	14120	214.0	219	207	..	12	14237	208.4	215	201	..
125	7	15383	206.1	210	202	..	19	15271	210.6	216	202	..	6	15272	201.0	207	197	..
100							14	16625	206.7	214	196	..	5	16624	196.2	202	192	..
80																		
	TRIVANDRUM (1004 mb.)						VERAVAL (1012 mb.)						VISAKHAPATNAM (1008 mb.)					
Surface	24	64	299.0	300	297	296.0	30	8	298.6	301	296	294.7	25	48	299.7	301	298	292.3
1000	24	96	..	..	..	..	30	114	..	..	..	..	25	118	..	..	..	..
900	24	1017	293.6	297	289	289.2	30	1039	294.6	298	290	284.7	25	1036	292.8	298	289	285.8
850	24	1509	290.7	295	285	285.8	30	1531	290.8	294	288	281.8	25	1527	289.7	295	286	277.4
800	24	2026	287.9	293	284	281.9	30	2047	287.4	293	284	277.5	25	2042	287.9	293	283	272.7
700	24	3145	281.8	289	278	275.3	30	3156	282.5	288	278	266.3	25	3164	283.0	287	279	267.5
600	24	4406	275.0	286	269	266.7	28	4425	275.8	281	271	259.2	25	4428	275.8	282	273	259.0
500	22	5860	267.3	279	260	..	28	5866	266.5	271	263	..	24	5885	266.8	273	259	..
400	21	7565	256.3	261	250	..	27	7574	254.9	261	250	..	24	7600	256.9	262	251	..
300	21	9669	241.7	246	235	..	26	9662	239.6	244	235	..	17	9705	241.2	248	233	..
250	21	10937	232.2	237	225	..	24	10928	231.1	237	225	..	14	10981	231.6	241	221	..
200	21	12423	221.5	225	214	..	23	12403	219.6	225	213	..	8	12452	221.3	232	215	..
175	19	13289	215.6	221	206	..	19	13222	213.9	221	205	..	6	13320	215.3	222	209	..
150	19	14261	209.1	217	196	..	13	14214	208.5	211	203	..	6	14294	208.3	217	202	..
125	13	15391	203.8	211	193	..												
100	11	16717	198.6	204	190	..												
80																		

NOTE.—Number of observations refer to those of dynamic height.

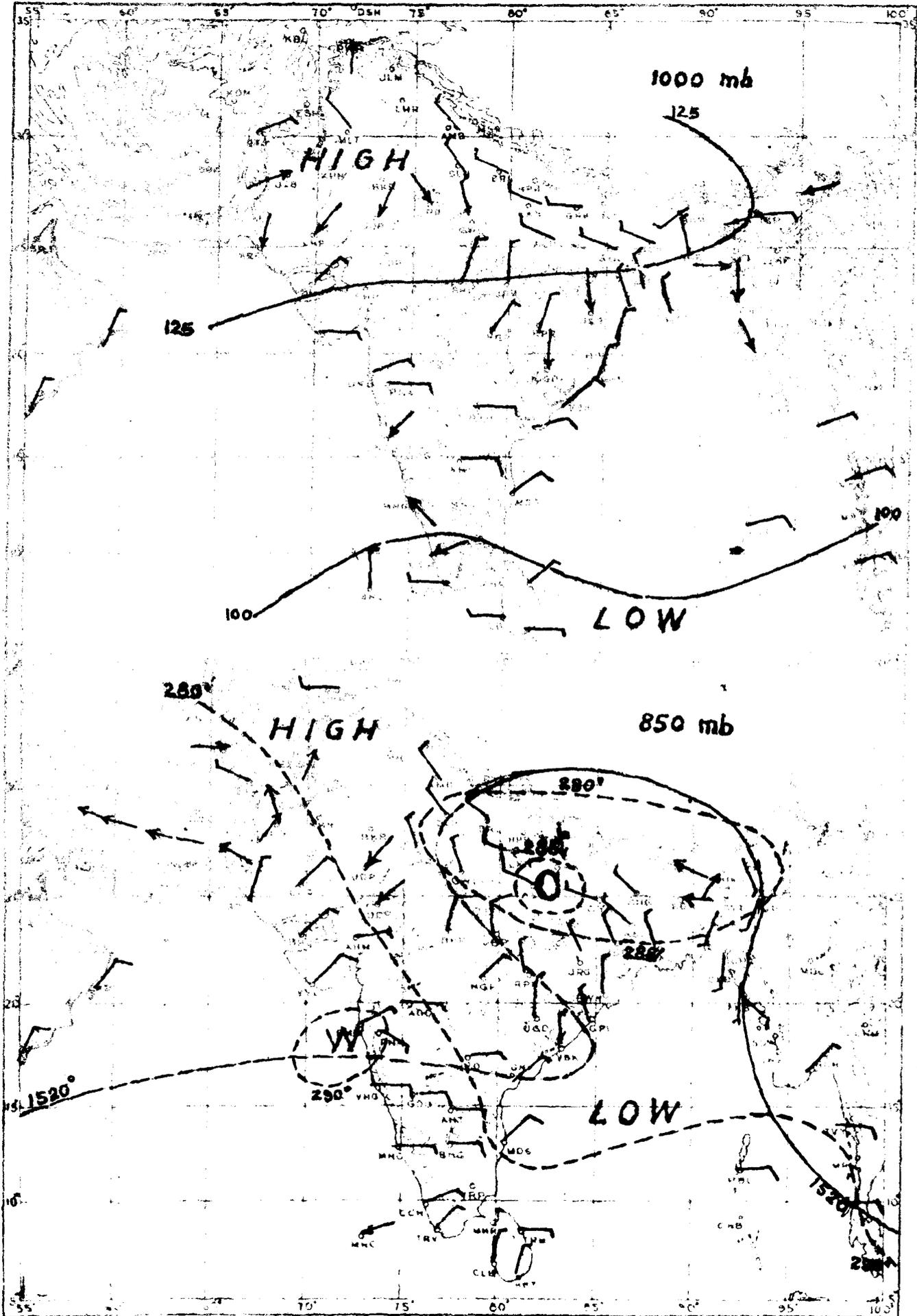
Means are not worked out for temperature and dew point for the 1000 mb. surface and for dew point for standard pressure surfaces with temperature less than 275°A.

Means are not worked out for less than five observations at standard pressure surfaces.

MONTHLY MEAN CONSTANT PRESSURE CHARTS NOVEMBER 1956

I. Mel.D.

Plate I

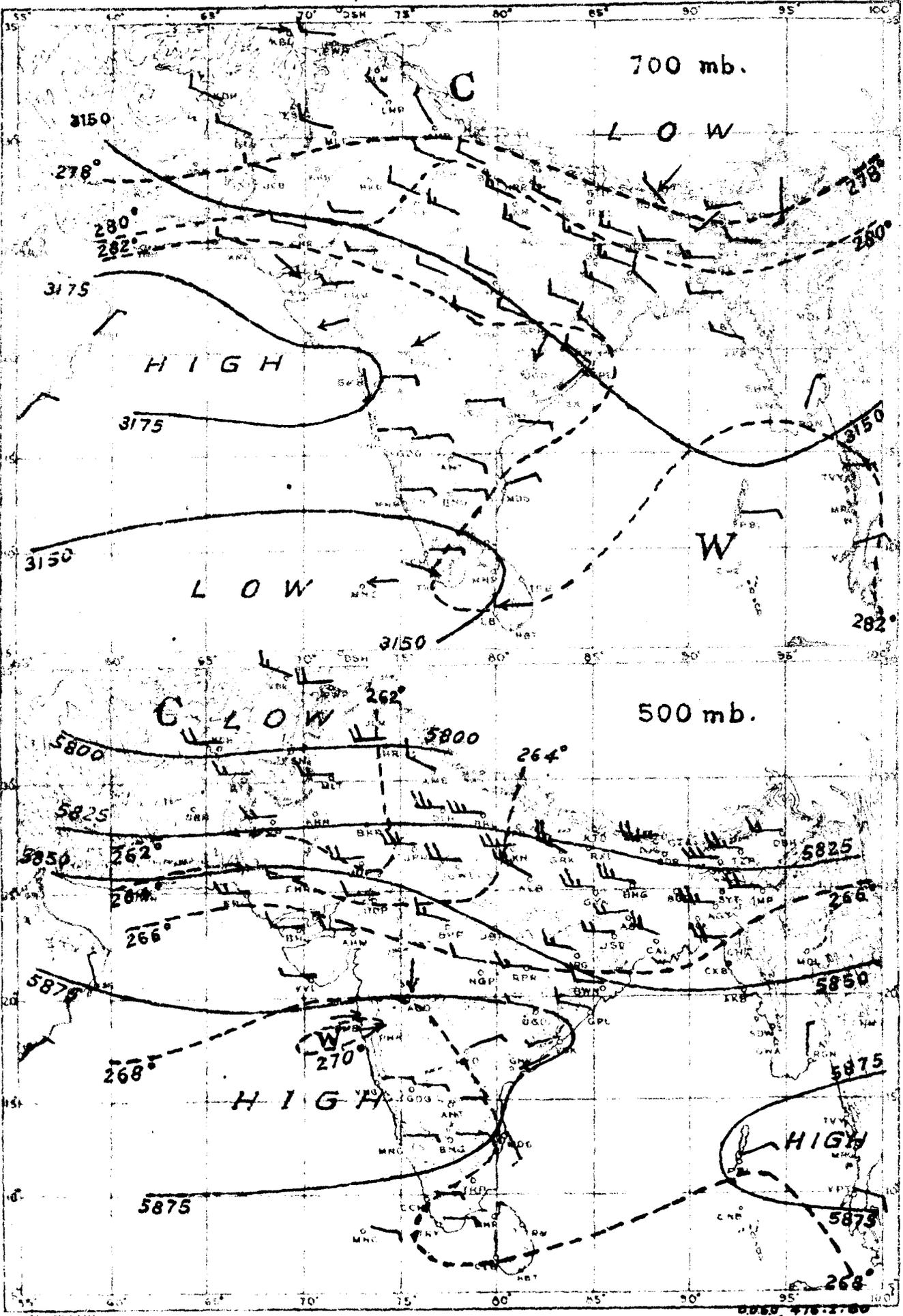


RESULTANT WIND — 5 Knots, — 10 Knots, — 50 Knots
 Isotherms in degrees absolute — Contours in geopotential metres.

MONTHLY MEAN CONSTANT PRESSURE CHARTS NOVEMBER 1956

I. Mel. D.

Plate II



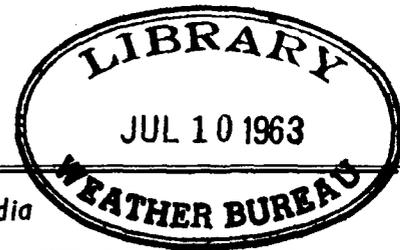
RESULTANT WIND \longleftarrow 5 Knots, \longleftarrow 10 Knots, \longleftarrow 50 Knots
 Isotherms in degrees absolute --- Contours in geopotential metres

INDIA WEATHER REVIEW, 1956

Monthly Weather Report

December

Published by authority of the Government of India



Chief features—

- (1) Seven western disturbances which caused good precipitation in Jammu and Kashmir.
- (2) Two spells of good northeast monsoon rains in the south Peninsula, one during the first week and the other during the last week of the month.

Seven western disturbances moved across the northern parts of the country during the month. Of these, the first, second and fifth were active and together with their induced low pressure areas caused some precipitation in the northern and central parts of the country. The last western disturbance was feeble and did not cause any precipitation. The remaining disturbances caused precipitation which was mainly confined to Jammu and Kashmir and the Punjab hills.

The details about the seven western disturbances and the weather caused by them are set out in the following table.

Statement of western disturbances during the month of December 1956

S. No.	Period	Course	Region affected	Nature of precipitation	Period	Remarks
1	2	3	4	5	6	7
1	3rd to 7th	Extreme north of the country.	Punjab hills and Jammu and Kashmir	Local rain Scattered rain or snow	7th 7th	
1(a)	3rd to 6th	Northwest Arabian Sea to Saurashtra and Kutch.	Gujarat and Saurashtra and Kutch. West Madhya Pradesh and East Rajasthan West Rajasthan	A few very light showers Scattered showers Scattered showers	5th 6th and 7th 7th	Induced by western disturbance mentioned above.
2	8th to 9th	Extreme north of the country.	Jammu and Kashmir	Scattered rain or snow	8th	
2(a)	8th to 9th	Punjab(P) to the Punjab Kumaon hills	West Madhya Pradesh East Madhya Pradesh East Rajasthan and West Uttar Pradesh.	Local thundershowers Fairly widespread thunder showers Scattered showers	8th and 9th 9th	Induced by western disturbance No. 2
3	13th to 15th	Extreme north of the country	East Kashmir	Scattered rain or snow	14th	
4	19th to 22nd	North Rajasthan and Punjab(P) to east Kashmir	Jammu and Kashmir and Punjab hills.	Local rain or snow	21st and 22nd	
5	23rd to 25th	Northern divisions of West Pakistan to Kashmir	Jammu and Kashmir and Punjab hills.	Fairly widespread rain or snow	25th	
5(a)	26th to 30th	Rajasthan to Bihar	Madhya Pradesh and East Uttar Pradesh Bihar Assam, West Bengal and Chota Nagpur.	Scattered showers Fairly widespread rain. Scattered showers	29th & 30th 30th & 31st	Induced by western disturbance No. 5
6	27th to 29th	Extreme north of the country.	Jammu and Kashmir and Punjab Kumaon hills	Fairly widespread rain or snow.	27th to 29th	
7	30th to 31st	Extreme north of the country. Was feeble and did not cause any precipitation.

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An easterly wave which moved westwards across the extreme south of the Bay of Bengal caused active northeast monsoon conditions in Tamilnad and the adjoining areas of Rayalaseema and of Coastal Andhradesa from the 2nd to 4th. Pamban recorded 3" of rain on the 4th, Ongole 2" on the 3rd and Madras 2" on the 2nd as well as on the 4th. Another easterly wave which moved across the extreme south of the Peninsula caused local rain in south Tamilnad on the 6th, Nagapattinam reporting 3". Thereafter, mainly dry weather prevailed over the southern parts of the Peninsula till the last week, when in association with an easterly wave, the northeast monsoon revived over the south Peninsula on the 25th and caused fairly widespread rain in coastal Tamilnad on that day. The rainfall extended into the remaining areas of the south Peninsula during the subsequent two days. The northeast monsoon was strong on the 27th, when Nellore reported 6" and Tuticorin 3".

* The rainfall during the month was in large excess in Chota Nagpur, Bihar, Vindhya Pradesh, coastal Andhradesa and Rayalaseema, in moderate excess in Assam and east Madhya Pradesh and in slight excess in West Bengal, Jammu and Kashmir and Madhya Bharat. It was in slight defect in east Rajasthan, west Madhya Pradesh and Tamilnad and in large defect in the remaining parts of the country.

The mean maximum temperature was above normal in the Bay Islands and Chota Nagpur and normal elsewhere over the country.

The mean minimum temperature was above normal in West Bengal, Chota Nagpur, Bihar, Uttar Pradesh, the Punjab(I), west Rajasthan and east Madhya Pradesh and normal over the remaining parts of the country.

The mean relative humidity in the morning was in excess in west Uttar Pradesh, Punjab (I) Rajasthan, Madhya Bharat, Vindhya Pradesh, west Madhya Pradesh, Gujarat, Saurashtra and Kutch and Deccan (Desh), in defect in Malabar and south Kanara and Travancore-Cochin and normal elsewhere over the country.

The mean cloud amount in the morning was in excess in north-west India, Uttar Pradesh and Madhya Bharat, in defect in West Bengal, Orissa, Chota Nagpur, the Konkan, Rayalaseema and Malabar and south Kanara and normal over the remaining parts of the country.

Table I contains the divisional and sub-divisional means of rainfall, temperature, humidity and cloud amount for the 13 chief political divisions and the 28 sub-divisions. The stations whose observations are used for preparing these means are given in the subsequent tables.

The highest maximum temperature given for any station in the accompanying tables is that recorded within the 24 hours ending at 0830 hrs. I. S. T. of the date noted in the succeeding column. Similarly the heaviest fall in 24 hours for any station denotes the amount recorded during the 24 hours ending at 0830 hrs. I. S. T. of the date given in the succeeding column.

POONA 5:

The 3rd April 1958.

S. S. LAL,

for Director General of Observatories.

*In the description given in the following paragraphs the sub-divisions are given according to the scheme in force prior to 1st November 1956. This has been done to secure uniformity in the description of the mean monthly meteorological elements for all the months of 1956.

1	Rainfall (inches)	Percentage of normal	Mean maximum temperature °F	Mean minimum temperature °F	Relative humidity %		Cloud.		1	Rainfall (inches)	Percentage of normal	Mean maximum temperature °F	Mean minimum temperature °F	Relative humidity %		Cloud	
					0830 hrs. I.S.T.	1730 hrs. I.S.T.	0830 hrs. I.S.T.	1730 hrs. I.S.T.						0830 hrs. I.S.T.	1730 hrs. I.S.T.	0830 hrs. I.S.T.	1730 hrs. I.S.T.
Division									Division—Contd.								
1. Assam (Including Manipur & Tripura).	0.41 +0.09	128	75.8 +0.8	54.4 +1.6	86 -2	76	2.9 +0.3	1.3	8. Madhya Bharat & Vindhya Pradesh.	0.51 +0.20	165	77.7 +0.5	48.6 +1.3	71 +8	45	1.7 +0.3	2.1
2. West Bengal	0.19 +0.03	119	79.0 +1.0	57.3 +2.6	73 0	59	0.9 -0.4	0.5	9. Madhya Pradesh	0.32 -0.04	89	81.0 +0.8	54.3 +1.9	69 +6	46	1.5 -0.1	1.9
3. Orissa	0.01 -0.22	4	80.9 +0.5	60.1 +1.6	75 +2	60	0.8 -0.8	0.9	10. Bombay (Including Saurashtra and Kutch).	0.01 -0.15	6	84.9 -0.2	59.6 +0.6	67 +6	45	1.5 -0.1	1.6
4. Bihar	0.47 +0.28	247	77.8 +2.0	52.3 +2.1	72 -1	60	0.9 -0.2	1.2	11. Hyderabad	0.05 -0.17	23	83.1 -0.2	60.1 +1.4	68 +4	39	1.9 +0.1	2.5
5. Uttar Pradesh	0.14 -0.29	33	73.9 -0.5	48.5 +2.2	78 +5	60	2.2 +0.8	2.7	12. Madras (Including Travancore—Cochin).	2.28 -0.24	90	84.2 -0.3	68.3 +0.2	76 +1	63	2.7 -0.5	3.0
6. Punjab (I) (Including PEPSU and Delhi).	0.17 -0.39	30	73.4 +0.7	46.7 +2.8	79 +8	55	2.6 +0.6	3.0	13. Mysore	0.11 -0.33	25	79.5 -1.8	59.7 -0.2	76 +3	44	2.9 -0.2	2.8
7. Rajasthan	0.11 -0.06	.65	77.7 +0.3	49.2 +1.6	67 +10	38	2.4 +0.9	2.8	Mean of India	0.44 -0.11	80	79.9 +0.2	55.7 +1.4	72 +4	51	1.9 +0.1	2.2
Sub-division									Sub-division—Contd.								
1. Bay Islands	3.01 -4.91	38	85.6 +2.0	73.5 +0.6	69 -2	77	4.3 +0.1	4.3	15. Madhya Pradesh, East.	0.28 +0.07	133	80.8 +1.5	54.6 +2.8	73 +2	51	1.3 -0.3	1.8
2. Assam (Including Manipur & Tripura).	0.41 +0.09	128	75.8 +0.8	54.4 +1.6	86 -2	76	2.9 +0.3	1.3	16. Madhya Pradesh, West.	0.35 -0.11	76	81.1 +0.4	54.2 +1.4	67 +8	42	1.5 +0.1	2.0
3. West Bengal	0.19 +0.03	119	79.0 +1.0	57.3 +2.6	73 0	59	0.9 -0.4	0.5	17. Gujarat	0.01 -0.05	17	86.1 +0.1	55.3 +0.9	68 +6	39	1.2 0	1.3
4. Orissa	0.01 -0.22	4	80.9 +0.5	60.1 +1.6	75 +2	60	0.8 -0.8	0.9	18. Saurashtra and Kutch.	0.02 -0.05	29	83.3 0	56.6 +1.3	65 +11	41	1.3 +0.1	1.1
5. Chota Nagpur	0.50 +0.26	208	78.1 +2.2	52.1 +2.0	67 -2	56	0.9 -0.5	1.3	19. Konkan	0 -0.14	0	86.4 -0.3	67.1 +0.1	68 +2	62	1.5 -0.4	1.5
6. Bihar	0.45 +0.30	300	77.6 +1.9	52.5 +2.2	76 0	64	0.9 -0.1	1.2	20. Deccan (Desh)	0 -0.26	0	83.6 -0.4	57.1 +0.6	67 +7	37	1.7 +0.1	2.3
7. Uttar Pradesh, East.	0.13 -0.19	41	74.9 -0.7	49.2 +2.5	79 +4	62	1.8 +0.7	2.2	21. Hyderabad, North	0 -0.23	0	82.7 0	59.1 +1.7	66 +5	38	1.6 -0.2	2.7
8. Uttar Pradesh, West.	0.15 -0.37	29	73.1 -0.3	47.9 +2.0	77 +6	57	2.5 +1.0	3.1	22. Hyderabad, South	0.09 -0.11	45	83.4 -0.4	60.8 +1.2	69 +4	40	2.1 +0.3	2.5
9. Punjab (I) (Including PEPSU and Delhi).	0.17 -0.39	30	73.4 +0.7	46.7 +2.8	79 +8	55	2.6 +0.6	3.0	23. Coastal Andhra-desa.	1.97 +1.07	219	82.9 0	65.5 +0.3	76 +1	66	2.3 -0.5	2.4
10. Jammu & Kashmir	2.47 +0.24	111	50.1 -0.4	30.2 +0.4	68 -2	57	4.9 +0.8	5.5	24. Rayalaseema	1.22 +0.80	290	84.5 -1.7	63.5 +0.3	79 +5	51	1.9 -0.5	2.3
11. Rajasthan, West	0.04 -0.09	31	77.8 +0.5	48.9 +2.4	62 +6	37	2.5 +0.8	3.1	25. Tamilnad	3.50 -1.06	77	83.0 -0.7	69.3 +0.2	79 -2	65	3.5 -0.4	3.7
12. Rajasthan, East (Including Ajmer)	0.18 -0.03	86	77.5 +0.1	49.5 +0.8	71 +13	40	2.3 +0.9	2.4	26. Malabar and South Kanara	0.05 -0.71	7	89.5 +1.1	70.8 -0.5	65 -7	61	0.7 -1.9	1.4
13. Madhya Bharat	0.30 +0.04	115	77.9 -0.2	49.0 +1.2	66 +8	39	1.9 +0.5	2.4	27. Mysore	0.11 -0.33	25	79.5 -1.8	59.7 -0.2	76 +3	44	2.9 -0.2	2.8
14. Vindhya Pradesh	0.86 +0.47	221	77.3 +1.6	47.9 +1.3	78 +9	55	1.5 -0.1	1.5	28. Travancore-Cochin	0.89 -1.14	44	87.7 +0.9	74.5 +1.1	69 -7	65	3.5 +0.3	3.7

NOTE.—The entries in the second line for each division and sub-division indicate departures from normal.

Division and station	Mean maximum.	Departure from normal.	Air temperature in °F						Rainfall in inches						No. of rainy days (0.10" or more)		Wind speed, miles per hour.					Weather phenomena—No. of days with							
			Highest.	Date.	Mean minimum.	Departure from normal.	Lowest.	Date.	Total fall during 0830-1730 hours.	Total fall in 24 hours.	Departure from normal.	Heaviest fall in 24 hours.	Date.	Total in the month.	Departure from normal.	Mean between 0830-1730 hours.	Mean 24 hours.	Departure from normal.	Precipitation (0.1" or more).	Snow or sleet.	Hail.	Thunder heard.	Fog.	Dust-storm.	Ground frost.	Gale.	Squall.	Line squall.	
																													4
NOVEMBER—Contd.																													
HYDROMETEOROLOGICAL OBSERVATORIES																													
Kosi Catchment																													
Katmandu	71.3	..	75	4 days	47.2	..	40	30	0.31	0.91	..	0.60	1	2	..	0.2	0	..	2	0	0	0	28	0	0	0	0	0	0
Chautara	69.3	..	73	5	52.4	..	48	28,29	0.29	1.21	..	0.92	1	2	..	..	..	..	2	0	0	0	1	0	0	0	0	0
Okhaldhunga	65.2	..	70	3	48.3	..	43	21	0.61	1.43	..	0.78	1	2	..	1.5	1.3	..	2	..	..	..	..	..	..	..	..	..
Barakshetra	79.8	..	84	16	61.5	..	58	6 Days	1.03	1.81	..	1.16	2	2	..	3.4	3.0	..	2	0	0	0	0	0	0	0	0	0	
Taplejung	63.7	..	70	3,4	49.4	..	44	29,30	0.41	1.23	..	0.79	1	2	..	2.0	0.9	..	2	0	0	0	0	0	0	0	0	0	
Taplethok	81.2	..	85	3	52.3	..	46	26	..	1.80	..	1.00	13	3	..	..	..	..	4	..	..	..	..	..	..	..	..	..
Wallungchung Gola	47.0	..	49	7 days	28.3	..	25	4 days	..	1.02	..	0.62	2	2	..	..	..	..	2	..	..	..	..	..	..	..	..	..
Bhojpur	66.5	..	71	1,9	52.0	..	48	29,30	0.55	1.44	..	0.90	1	2	..	..	..	..	2	..	..	..	..	..	..	..	..	..
NEPAL Gandak Catchment																													
Gorkha	(h) 70.6	..	74	5,6	(b) 56.0	..	53	8,27	..	0.34	..	0.26	1	1	..	..	..	..	2	..	..	..	..	..	..	..	..	..
DECEMBER																													
Arabian Sea																													
Minicoy	85.3	-0.1	87	1,3,6	73.4	-0.6	67	13	0.19	0.19	-3.18	0.18	29	1	3.3	4.8	3.7	-0.6	2	0	0	1	0	0	0	0	0	0	
Amini Divi	90.2	+3.1	93	14	75.1	+0.9	69	21	..	0	-1.49	0	..	0	2.0	..	4.8	+1.6	0	0	0	0	0	0	0	0	0	0	
HYDROMETEOROLOGICAL OBSERVATORIES																													
Kosi Catchment -																													
Katmandu	64.2	..	68	5 days	38.3	..	34	4	0.03	0.14	..	0.04	22	4	..	0.2	0	..	4	0	1	1	32	0	0	0	0	0	
Chautara	63.0	..	68	27	45.6	..	42	12,16	0.14	0.26	..	0.14	22	2	..	..	..	..	2	..	..	..	..	..	..	..	..	..
Okhaldhunga	58.8	..	66	1	41.5	..	37	16,18	0.01	0.07	..	0.05	1	0	..	2.0	1.6	..	3	0	0	0	1	0	0	0	0	0	
Barakshetra	74.9	..	80	1,2	54.3	..	51	16,19	0.13	0.14	..	0.12	16	1	..	3.5	3.0	..	2	0	0	0	0	0	0	0	0	0	
Taplejung	(c) 56.8	..	63	8	41.3	..	38	12,16	0.74	0.98	..	0.31	18	3	..	1.0	0.5	..	8	0	0	2	2	0	2	0	0	0	
Taplethok	74.2	..	83	4	46.3	..	41	30	..	0.12	..	0.09	20	0	..	..	..	..	3	..	..	..	..	..	..	..	..	..
Wallungchung Gola	41.5	..	45	31	23.7	..	20	7,20	..	0.59	..	0.21	19	3	..	..	..	..	5	..	..	..	..	..	..	..	..	..
Bhojpur	(e) 59.7	..	65	3	45.2	..	41	16	0	0	..	0	..	0	..	..	..	..	0	..	..	..	..	..	..	..	..	..
NEPAL Gandak Catchment																													
Gorkha	64.0	..	68	4,9,10	(a) 48.6	..	44	30	..	0.50	..	0.38	12	2	..	..	..	..	2	..	..	..	..	..	..	..	..	..

(a) Mean of 30 days.

(b) Mean of 29 days.

(c) Mean of 26 days.

(h) Mean of 23 days.

Division and station	Hour of observation I. S. T.	Height of barometer cistern above mean sea level in feet.	Mean pressure in millibars			Mean temperature in °F			Vapour pressure in mbs	Relative humidity %	Departure from normal	Cloud amount (Oktas)		Mean wind speed miles per hour	Wind speed (m.p.h.)			No. of observations									
			At station level	Departure normal	Dry bulb	Wet bulb	Dew point	Mean amount				Departure normal	99 or more		13 to 38	1 to 12	N	NE	E	SE	S	SW	W	NW	Calm	Variable	
																											of height in ft. of nearest standard isobaric level.
NOVEMBER—contd.																											
Arabian Sea Minicoy (contd.)	1130	6	1012.2	1012.0	88.6	77.3	74.4	29.2	73	..	4.6	..	4.3	0	0	25	3	1	6	2	1	0	4	8	5	..	
	1730	..	1009.7	1009.5	82.2	76.7	74.2	28.7	77	..	5.1	..	3.7	0	0	26	2	3	3	2	1	0	5	10	4	..	
	2330	..	1012.1	1011.9	77.2	74.7	73.4	28.0	89	..	3.0	..	2.0	0	0	17	2	2	3	1	0	0	1	8	13	..	
Amini Divi	0830	13	1012.7	1012.2	82.4	77.4	75.2	29.8	79	+4	3.6	-0.3	4.5	0	0	28	11	6	3	0	1	0	0	7	2	..	
HYDROMETEOROLOGICAL OBSERVATORIES																											
Kosi Catchment Katmandu	0830	4343	1545.9	872.0	52.9	51.5	50.2	12.5	91	..	4.6	..	0	0	0	0	0	0	0	0	0	0	0	0	0	30	..
	1130	..	1538.7	870.8	66.9	57.8	49.5	12.2	55	..	2.1	..	0.2	0	0	3	0	0	1	0	1	0	1	0	0	27	..
	1730	..	1517.7	868.8	60.3	55.6	51.7	13.2	74	..	1.8	..	0.4	0	0	6	3	0	1	0	0	0	0	0	2	24	..
Chautara	0830	..	..	..	57.2	54.5	52.8	13.5	85	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	1730	..	..	..	61.7	55.8	51.9	13.1	70	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Okhaldhunga	0830	..	..	..	57.0	54.1	52.3	13.3	84	..	2.8	..	1.0	0	0	13	0	1	2	3	5	1	0	1	17	..
	1130	..	..	..	63.2	57.7	54.1	14.3	73	..	4.2	..	1.3	0	0	18	0	0	0	2	3	6	6	1	12	..
Barakhshetra	0830	479	1017.3	1000.2	65.5	62.1	61.5	17.5	82	..	1.4	..	3.0	0	0	24	1	2	8	5	2	3	2	1	6	..	
	1130	..	1014.8	998.2	76.0	67.9	63.3	19.7	64	..	2.4	..	4.3	0	0	28	0	1	1	2	2	16	5	1	2	..	
	1730	..	1013.8	997.1	68.3	65.4	63.8	20.1	86	..	2.4	..	2.4	0	0	24	0	1	9	11	1	2	0	0	6	..	
Taplejung	0830	55.9	51.8	48.5	11.7	77	..	3.3	..	0	0	0	0	0	0	0	0	0	0	0	0	0	30	..
	1130	..	..	..	62.1	55.1	49.8	12.3	65	..	3.9	..	1.6	0	0	12	0	0	0	0	1	5	6	0	18	..
	1730	..	..	..	56.2	51.1	46.7	11.0	71	..	4.0	..	1.6	0	0	14	0	0	0	1	13	0	0	0	16	..
Taplethok	0830	..	..	..	59.4	56.5	54.6	14.4	83	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wallung chung Gola	0830	..	..	..	40.1	36.2	31.6	6.0	72	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	*1730	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bhojpur	0830	..	..	..	59.7	54.7	50.7	12.9	74	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	1730	..	..	..	55.8	53.3	51.8	13.0	85	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
NEPAL																											
Gandak Catchment Gorkha	0830	..	..	..	60.9	59.4	58.8	16.7	91	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	1730	..	..	..	62.7	58.7	55.7	15.2	79	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
DECEMBER																											
Arabian Sea Minicoy	0530	6	1011.4	1011.2	75.0	72.2	70.6	25.7	87	..	2.0	..	2.1	0	0	16	4	10	2	0	0	0	0	0	0	15	..
	0830	..	1013.4	1013.2	80.3	75.1	72.4	27.1	77	+3	2.8	-0.5	3.8	0	0	27	7	13	4	2	0	0	0	1	4	..	
	1130	..	1013.3	1013.1	83.3	76.0	72.4	27.0	69	..	2.9	..	5.2	0	0	29	6	8	10	3	0	0	0	0	1	3	
	1730	..	1010.5	1010.3	82.1	75.7	72.5	27.2	73	..	3.2	..	3.7	0	0	28	9	15	3	0	0	0	0	0	0	15	
	2330	..	1012.9	1012.7	76.9	73.2	71.5	26.3	84	..	1.8	..	2.3	0	0	16	4	7	5	0	0	0	0	0	0	15	
Amini Divi	0830	13	1013.9	1013.4	80.9	77.0	75.1	29.9	83	+14	3.0	0	7.0	0	1	28	12	8	2	0	0	0	1	6	2	..	
HYDROMETEOROLOGICAL OBSERVATORIES																											
Kosi Catchment Katmandu	0830	4343	1541.8	872.0	42.9	42.2	41.6	8.7	95	..	6.5	..	0	0	0	0	0	0	0	0	0	0	0	0	0	31	..
	1130	..	1540.3	871.2	58.6	51.5	44.6	10.1	61	..	2.4	..	0.3	0	0	4	0	0	1	1	2	0	0	0	0	27	..
	1730	..	1519.3	869.2	53.1	48.7	44.5	9.9	73	..	3.5	..	0.6	0	0	9	3	0	0	1	1	0	0	4	22	..	
Chautara	0830	..	..	..	49.9	46.6	43.3	9.6	76	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	1730	..	..	..	54.6	48.8	44.0	9.7	67	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Okhaldhunga	0830	..	..	..	47.9	46.8	42.5	10.5	82	..	3.5	..	0.8	0	0	11	1	0	2	1	2	1	4	0	20	..
	1130	..	..	..	54.9	49.4	44.8	10.1	71	..	4.9	..	1.8	0	0	23	0	1	0	2	2	10	8	0	8	..
Barakhshetra	0830	479	1019.3	1002.0	58.1	54.7	51.7	13.0	80	..	1.9	..	3.5	0	0	24	0	7	2	4	3	5	1	2	7	..	
	1130	..	1017.2	1000.2	68.5	60.3	53.7	14.2	60	..	2.4	..	2.5	0	0	23	0	2	0	2	3	10	1	5	8	..	
	1730	..	1015.7	998.0	61.8	59.5	56.8	16.3	83	..	2.9	..	4.3	0	0	31	0	3	16	12	0	0	0	0	0	..	
Taplejung	0830	..	..	..	47.2	43.8	40.4	8.5	78	..	3.3	..	0	0	0	0	0	0	0	0	0	0	0	0	0	31
	1130	..	..	..	54.6	48.6	43.4	9.5	66	..	3.5	..	0.7	0	0	9	0	0	0	0	2	3	3	1	22	
	1730	..	..	..	49.0	44.6	40.3	8.5	72	..	4.1	..	0.7	0	0	6	0	0	1	4	0	0	1	0	25	
Taplethok	0830	..	..	..	52.6	49.6	46.6	10.9	81	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wallung chung Gola	0830	..	..	..	36.7	32.5	26.9	4.9	67	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	*1730	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bhojpur	0830	..	..	..	51.1	46.2	41.3	8.9	70	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	1730	..	..	..	49.6	46.6	43.6	9.7	81	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
NEPAL																											
Gandak Catchment Gorkha	0830	..	..	..	54.2	50.5	46.8	11.0	77	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	1730	..	..	..	57.1	52.2	47.6	11.8	71	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

*Data not reliable.

**TABLE III (A)—EXTREMES OF MAXIMUM AND MINIMUM TEMPERATURES (°F) AND RAINFALL (IN INCHES)
IN 24 HOURS BASED ON DATA UPTO 1956**

	January			February			March			April			May			June			July			
	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	
Islands																						
Maya Bandar	93 1953	65 1956	0.54 1955	89 1956	64 1954	0.69 1953	93 1955	66 1955	0.37 1953	97 1955	66 1953	2.67 1953	95 1952	63 1952	7.27 1955	97 1952	70 1956	8.40 1955	89 1956	70 1954	4.42 1954	
Long Island	89 1955	65 1953	1.28 1954	90 1954	60 1953	1.70 1953	93 1953	67 1955	0.11 1954	97 1953	70 1956	3.95 1953	94 1955	70 1955	7.33 1955	91 1954	70 1955	8.26 1955	92 1953	70 1956	4.38 1953	
Port Blair	90 1949	62 1940	8.20 1922	92 1954	63 1949	5.16 1902	94 1886	64 1949	2.64 1881	97 1889	69 1939	8.14 1922	97 1889	69 1939	10.43 1891	96 1933	67 1939	10.17 1908	91 1941	65 1941	5.85 1914	
Kondul	86 1953	69 1956	6.64 1953	86 1956	67 1953	3.55 1953	89 1955	71 1954	2.75 19.6	89 1955	72 1955	3.77 1955	90 1952	71 1956	5.25 1956	88 1952	71 1955	7.92 1954	88 1956	70 1954	3.29 1956	
Car Nicobar	88 1954	61 1956	4.10 1954	95 1954	61 1956	3.25 1956	91 1953	66 1953	2.10 1953	93 1954	67 1956	3.92 1956	93 1952	70 1952	5.08 1955	90 1953	71 1956	5.00 1955	89 1955	71 1955	2.95 1953	
Noncowry	93 1954	71 1956	2.95 1953	93 1954	68 1956	3.59 1956	95 1954	70 1956	1.93 1954	98 1952	69 1952	3.11 1956	97 1952	66 1952	4.70 1954	90 1953	70 1956	4.49 1955	88 1954	71 1956	5.48 1952	
Sam Digboi	75 1956	42 1956	2.06 1956	85 1956	48 1956	0.17 1956	86 1956	52 1956	1.58 1956	95 1956	61 1956	1.56 1956	97 1956	68 1956	1.15 1956	99 1956	73 1956	1.78 1956	96 1956	70 1956	4.66 1956	
Dibrugarh	82 1946	41 1940	1.40 1911	87 19.2	40 1905	1.83 1917	93 1923	43 1903	2.20 1915	96 1937	54 1920	7.76 1913	98 1947	62 1909	4.65 1948	102 1905	60 1910	7.96 1931	100 1956	68 1908	6.48 1902	
Dibrugarh (Mohanbari Aerodrome)	79 1952	39 1953	0.97 1956	86 1952	43 1953	2.20 1954	91 1955	52 1956	2.17 1955	93 1952	57 1954	2.31 1954	94 1956	63 1955	2.72 1953	98 1953	68 1955	4.44 1951	99 1952	71 1956	3.82 1955	
Sibsagar	84 1942	38 1917	1.72 1945	87 1942	37 1905	1.69 1892	96 1945	45 1917	4.45 1892	97 1937	55 1912	5.85 1913	109 1945	62 1893	7.41 1931	100 1881	67 1907	7.45 1903	102 1883	69 1909	8.62 1929	
North Lakhimpur	80 1955	37 1956	0.98 1956	85 1956	43 1956	0.80 1955	89 1955	50 1955	2.92 1955	91 1956	59 1955	3.92 1954	95 1956	64 1955	6.95 1954	95 1956	70 1955	3.57 1955	97 1956	69 1954	7.87 1956	
Jorhat	80 1955	43 1956	1.34 1954	88 1954	47 1956	0.19 1954	93 1954	51 1955	1.90 1954	93 1956	59 1955	2.00 1954	95 1955	61 1955	2.87 1955	96 1955	69 1955	2.53 1956	97 1956	71 1956	3.44 1956	
Golaghat	79 1956	53 1955	0.48 1956	87 1954	49 1954	0.70 1954	96 1954	55 1954	1.48 1956	95 1956	61 1954	1.46 1954	99 1954	67 1954	4.34 1956	95 1955	71 1954	2.38 1956	96 1956	72 1955	4.39 1956	
Lumding	83 1952	39 1956	0.38 1956	93 1952	40 1956	0.66 1954	100 1954	49 1955	1.19 1956	102 1956	51 1951	1.37 1956	104 1954	63 1955	4.34 1956	99 1953	68 1953	2.79 1956	99 1953	64 1955	4.50 1956	
Tezpur	82 1907	42 1945	1.16 1907	89 1952	43 1905	1.52 1940	98 1923	50 1927	2.44 1912	101 1938	56 1905	3.94 1946	101 1937	63 1955	5.83 1904	98 1953	67 1907	5.38 1904	98 1936	71 1956	5.62 1947	
Tezpur (P.B.O.)	81 1952	43 1953	0.64 1953	89 1952	47 1953	0.28 1953	75 1954	52 1952	1.57 1955	98 1952	61 1955	2.06 1954	95 1956	65 1955	2.24 1956	97 1953	69 1955	2.80 1955	97 1956	71 1956	3.47 1955	
Majbat	..	..	0.52 1956	..	..	0.41 1956	..	..	1.75 1955	..	..	2.70 1956	..	..	3.25 1954	..	..	5.37 1956	..	..	3.76 1954
Chaparmukh	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tangla	..	..	0.43 1955	..	..	0.30 1955	..	..	1.90 1955	..	..	3.17 1954	..	..	2.48 1954	..	..	4.76 1956	..	..	3.21 1955
Gauhati	84 1955	41 1925	1.62 1945	95 1951	43 1932	2.10 1914	101 1909	43 1906	2.21 1915	104 1939	55 1907	2.98 1955	101 1937	61 1955	7.30 1941	98 1952	66 1955	7.65 1956	99 1914	69 1953	9.17 1933	
Gauhati (Kaikuchi Aerodrome)	81 1952	42 1953	0.54 1953	90 1956	43 1951	0.35 1952	99 1954	51 1952	1.96 1955	101 1951	58 1952	3.95 1955	98 1954	63 1955	3.25 1952	98 1952	70 1955	6.84 1953	96 1951	73 1953	4.05 1951	
Goalpara	81 1955	43 1955	0.57 1956	89 1956	45 1956	0.14 1954	99 1954	52 1955	1.14 1955	100 1954	61 1955	3.60 1956	99 1954	62 1955	5.58 1954	95 1956	61 1955	4.21 1956	96 1956	72 1953	7.71 1955	
Dhubri	85 1953	43 1905	2.18 1945	90 1901	37 1905	2.36 1904	101 1909	50 1906	4.25 1885	106 1939	54 1905	7.78 1948	104 1909	64 1940	8.91 1944	96 1940	57 1953	14.50 1909	95 1933	72 1951	11.52 1908	
Tura	81 1954	45 1953	0.29 1953	89 1956	50 1956	1.27 1954	95 1955	54 1952	1.77 1955	101 1952	60 1951	3.98 1952	99 1951	62 1952	7.61 1952	93 1952	66 1955	6.59 1956	93 1951	71 1956	9.012 19.51	
Agartala	84 1956	39 1955	0.34 1953	93 1953	43 1956	1.63 1953	100 1954	53 1954	1.81 1955	104 1956	61 1955	5.56 1955	99 1954	61 1955	4.86 1956	95 1953	70 1955	7.74 1956	93 1956	72 1953	5.39 1954	
Silchar	86 1946	42 1899	3.94 1911	91 1952	41 1905	3.56 1927	100 1901	47 1927	9.66 1922	103 1937	57 1935	6.50 1934	102 1937	60 1886	11.43 1893	100 1900	68 1921	8.95 1913	103 1896	70 1897	9.24 1915	
Hafong	73 1955	45 1956	0.46 1956	82 1956	47 1956	2.59 1954	89 1955	53 1954	1.36 1955	89 1956	57 1956	6.46 1955	96 1956	62 1955	4.23 1955	90 1956	65 1955	4.75 1955	88 1956	66 1956	3.93 1956	

X=Highest maximum temperature.

N=Lowest minimum temperature.

R=Heaviest rainfall in 24 hours ending at 0830 hrs. I.S.T.

.. = Information not available.

TABLE III (A)—EXTREMES OF MAXIMUM AND MINIMUM TEMPERATURES (°F) AND RAINFALL (IN INCHES) IN 24 HOURS BASED ON DATA UP TO 1956

August			September			October			November			December			Based on data since		
X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	Temp.	R: fall	
60 1953	69 1953	4.32 1956	89 1935	70 1954	4.13 1954	89 1955	68 1955	2.51 1955	95 1953	70 1954	3.45 1953	86 1955	67 1955	2.16 1953	1952	1952	Bay Island Maya Bari
88 1952	71 1956	5.80 1956	90 1935	71 1956	3.81 1953	90 1952	70 1956	4.81 1952	90 1953	69 1954	4.69 1953	89 1954	69 1953	2.12 1952	1952	1952	Long Isan
89 1952	70 1952	6.62 1954	89 1888	71 1954	7.01 1964	96 1966	67 1912	6.03 1928	89 1954	68 1949	5.60 1901	90 1896	66 1955	11.54 1957	1881	1881	Port Blair.
89 1953	70 1953	3.90 1954	87 1955	71 1954	4.35 1953	87 1955	72 1954	6.46 1952	87 1953	70 1955	3.68 1952	87 1955	71 1954	3.24 1955	1952	1952	Kondal.
89 1954	70 1956	4.36 1952	92 1954	69 1952	4.12 1953	89 1955	70 1952	7.81 1955	88 1953	68 1956	4.81 1955	86 1955	62 1952	2.05 1952	1952	1952	Car Nicot
89 1953	71 1956	4.34 1956	89 1954	70 1956	3.63 1955	93 1955	71 1954	2.28 1952	92 1953	70 1955	3.28 1955	94 1953	69 1954	3.23 1956	1952	1952	Nontowry
99 1956	74 1956	3.48 1956	95 1956	73 1956	2.70 1956	94 1956	63 1956	6.20 1956	83 1956	58 1956	0.51 1956	78 1956	46 1956	0.28 1956	1956	1956	Assam. Digboi.
100 1956	70 1903	8.80 1920	97 1956	61 1903	7.17 1941	97 1907	59 1913	4.32 1913	90 1942	48 1933	2.70 1932	83 1943	42 1918	2.21 1951	1901	1901	Dibrugarh
98 1953	72 1956	3.86 1952	97 1951	69 1954	3.33 1954	95 1955	61 1955	3.67 1953	89 1952	49 1953	1.01 1952	82 1951	41 1955	0.90 1951	1951	1951	Dibrugarh (Mohani Aerodrom)
100 1951	85 1944	6.08 1929	97 1947	67 1890	7.38 1902	96 1936	59 1938	3.92 1925	90 1936	49 1926	2.12 1936	83 1933	40 1916	1.43 1936	1881	1871	Sibsagar.
98 1956	71 1956	3.22 1955	97 1954	71 1956	5.11 1954	95 1955	51 1955	4.53 1956	89 1954	50 1954	0.96 1956	83 1954	38 1953	0.93 1954	1954	1954	North Lakhimpur.
99 1955	72 1956	2.69 1955	97 1955	73 1955	4.36 1953	96 1955	63 1956	2.21 1966	87 1955	50 1953	0.79 1955	82 1953	41 1954	0.43 1954	1951	1951	Jorhat.
97 1956	73 1955	3.83 1956	95 1955	72 1954	4.94 1954	94 1956	64 1954	1.90 1965	84 1956	53 1954	1.48 1955	79 1955	46 1956	0.74 1956	1954	1954	Golaghat
101 1953	70 1955	4.68 1952	99 1951	68 1953	3.61 1954	95 1956	61 1954	4.23 1962	90 1951	49 1953	4.00 1955	81 1954	43 1955	0.65 1953	1951	1951	Lumding
99 1953	76 1945	6.36 1952	98 1969	76 1913	4.05 1917	97 1956	60 1941	5.54 1969	92 1952	51 1953	2.36 1901	83 1951	44 1925	0.76 1907	1901	1901	Tezpur.
98 1953	74 1956	5.89 1952	97 1953	71 1953	4.79 1953	95 1956	61 1953	4.44 1952	88 1962	53 1953	1.62 1951	83 1951	45 1953	0.75 1953	1951	1951	Tezpur (P.B.O)
..	..	4.14 1954	..	..	2.74 1956	..	..	2.78 1955	..	..	0.67 1956	..	..	3.10 1956	..	1954	Majbat.
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Chirapar
..	..	4.09 1954	..	..	1.71 1954	..	..	1.15 1954	..	..	3.40 1956	..	..	0.61 1954	..	1954	Tangla.
100 1953	70 1955	7.39 1938	99 1928	68 1955	5.27 1949	96 1955	60 1921	3.67 1953	90 1950	51 1926	1.45 1924	85 1955	41 1948	0.67 1943	1906	1906	Gauhati
97 1953	73 1955	3.45 1954	95 1954	71 1956	3.53 1953	94 1955	63 1955	2.37 1951	88 1952	52 1954	0.78 1956	81 1954	45 1955	0.65 1952	1951	1951	Gauhati (Kaif Aerod)
99 1954	73 1955	2.64 1954	97 1956	65 1955	2.35 1955	97 1956	61 1954	1.99 1954	87 1956	54 1954	1.02 1956	88 1955	45 1955	0.77 1955	1954	1954	Goalpara
96 1942	72 1945	7.75 1924	95 1936	71 1950	10.00 1911	93 1956	63 1902	6.11 1919	88 1905	53 1903	3.25 1952	82 1944	46 1922	0.68 1894	1891	1881	Dhubri.
91 1953	71 1955	1.21 1956	95 1951	69 1956	5.02 1955	91 1955	60 1954	6.47 1953	91 1952	54 1951	1.55 1952	87 1951	51 1954	0.21 1956	1951	1951	Tura.
94 1954	73 1955	9.40 1955	95 1954	71 1956	4.55 1956	95 1955	61 1954	3.26 1956	91 1955	51 1953	4.12 1955	86 1953	45 1955	0.43 1956	1953	1953	Agarttal
101 1900	67 1906	6.10 1890	101 1897	66 1890	7.03 1939	98 1914	60 1914	7.33 1914	95 1900	51 1902	6.06 1956	89 1945	43 1913	3.97 1883	1881	1881	Silchar.
90 1956	68 1956	3.95 1954	90 1954	66 1956	2.38 1956	88 1956	60 1954	8.74 1954	80 1956	52 1954	9.22 1955	75 1954	47 1955	1.40 1954	1954	1954	Hafsluji

X = Highest maximum temperature.

N = Lowest minimum temperature.

R = Greatest rainfall in 24 hours ending at 08 30 hrs. I.S.T.

.. = Information not available.

APPENDIX I

	January			February			March			April			May			June			July		
	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R
Phal	76 1955	29 1954	0.60 1956	81 1956	30 1955	0.48 1954	88 1955	38 1954	1.08 1955	94 1954	50 1956	2.41 1955	91 1955	57 1955	4.73 1956	88 1955	66 1955	2.46 1955	90 1956	67 1956	3.01 1954
West Bengal Dum Dum	88 1956	46 1954	0.43 1953	96 1952	48 1956	0.58 1954	105 1955	56 1954	0.90 1956	109 1954	65 1955	2.09 1955	108 1951	67 1952	1.08 1951	102 1951	71 1953	5.08 1956	95 1953	75 1956	5.40 1953
Calcutta	89 1944	44 1899	1.94 1943	98 1952	45 1950	3.18 1906	106 1941	50 1898	2.75 1907	110 1954	61 1905	4.23 1918	108 1955	65 1887	6.15 1893	111 1924	70 1900	11.95 1918	98 1920	73 1940	7.23 1905
Barrackpore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sungor Island	87 1931	46 1899	1.63 1948	93 1952	45 1950	3.03 1885	101 1934	54 1906	4.95 1907	103 1938	63 1942	3.10 1921	101 1908	64 1893	7.98 1932	104 1929	67 1925	14.14 1927	97 1920	71 1954	19.94 1913
Sand heads	..	..	1.30 1944	..	..	2.18 1937	..	..	2.47 1940	..	..	2.86 1911	..	..	3.46 1950	..	..	13.15 1940	..	..	11.45 1921
Midnapore	91 1946	43 1934	1.66 1929	99 1922	42 1950	2.60 1931	109 1953	52 1925	3.13 1920	114 1938	63 1953	3.08 1949	116 1943	67 1950	5.72 1956	117 1942	68 1950	10.90 1950	99 1926	72 1943	6.33 1929
Contai	86 1956	49 1955	0.82 1953	99 1951	50 1953	1.14 1954	102 1951	59 1952	0.92 1951	105 1952	68 1956	0.91 1952	100 1955	63 1951	4.30 1956	96 1953	70 1952	8.17 1956	94 1954	71 1952	4.38 1954
Bankura	..	..	0.78 1954	..	..	0.72 1953	..	..	1.32 1956	..	..	1.53 1952	..	..	1.78 1951	..	..	2.03 1951	..	..	3.20 1956
Burdwan	98 1951	43 1934	1.72 1944	100 1896	40 1905	3.31 1938	107 1941	50 1928	4.56 1887	113 1897	61 1886	4.60 1909	115 1916	63 1882	9.62 1893	114 1926	68 1953	6.90 1928	102 1897	68 1953	11.78 1905
Krishnagar	94 1912	39 1934	2.04 1898	100 1896	39 1886	2.90 1943	108 1941	46 1898	3.44 1886	113 1954	57 1886	4.51 1946	112 1951	62 1893	5.45 1918	107 1944	68 1907	8.26 1890	99 1949	72 1955	9.62 1905
Asansol	89 1939	42 1934	2.03 1944	97 1952	41 1950	1.71 1927	107 1941	52 1923	1.74 1949	113 1954	61 1950	1.84 1945	117 1944	65 1927	5.00 1938	117 1926	69 1922	5.50 1936	104 1926	67 1947	10.62 1943
Suri	88 1955	44 1956	0.15 1955	92 1955	47 1956	0.35 1956	106 1955	59 1956	0.88 1956	112 1956	64 1955	0.79 1955	114 1955	67 1956	0.97 1955	113 1955	68 1955	2.90 1956	94 1955	72 1955	5.19 1955
Berhampore	88 1939	39 1933	1.25 1953	98 1926	41 1950	2.39 1937	108 1941	48 1898	2.45 1887	113 1954	60 1936	2.15 1893	115 1916	62 1882	6.43 1915	112 1953	67 1884	7.97 1898	101 1897	72 1955	8.70 1900
Malda	84 1932	40 1937	2.68 1899	93 1952	39 1935	1.77 1942	107 1941	45 1898	2.12 1926	112 1956	52 1953	2.48 1892	111 1951	65 1945	7.68 1938	112 1953	68 1955	6.61 1945	100 1897	70 1906	7.14 1945
Cooch Behar	82 1954	39 1955	0.25 1951	88 1951	46 1953	0.64 1951	98 1953	51 1954	0.79 1955	103 1954	57 1955	1.07 1951	98 1954	52 1955	5.29 1954	96 1953	67 1955	7.85 1954	95 1953	75 1955	10.20 1954
Jalpaiguri	84 1931	41 1937	1.48 1889	88 1931	36 1935	2.83 1914	97 1945	46 1906	2.70 1926	104 1932	51 1935	6.00 1945	103 1899	61 1910	6.34 1938	99 1927	67 1952	9.25 1903	99 1983	72 1949	15.37 1892
Bagdogra	84 1954	39 1955	1.46 1951	89 1955	41 1956	0.15 1952	93 1951	52 1952	1.72 1956	107 1952	54 1951	3.39 1952	100 1954	67 1955	5.42 1956	98 1952	70 1955	5.33 1954	98 1951	71 1956	7.00 1955
Orissa Baripada	90 1956	..	0	97 1956	..	1.29 1956	105 1956	..	1.32 1956	112 1956	..	0.96 1956	108 1956	..	1.79 1956	98	..	7.13 1956	93	..	2.41 1956
Balalore	92 1934	45 1934	3.35 1908	101 1934	44 1905	3.00 1923	105 1955	53 1927	2.77 1897	113 1892	62 1935	2.81 1947	116 1895	67 1893	8.72 1887	115 1926	68 1900	8.55 1956	101 1897	68 1913	13.67 1940
Chandbali	91 1950	47 1934	1.38 1948	100 1934	53 1942	1.43 1940	105 1954	57 1952	1.62 1940	110 1947	63 1945	2.06 1914	111 1942	64 1931	7.34 1956	116 1942	65 1931	6.47 1936	98 1929	71 1946	12.67 1941
Puri	91 1946	51 1893	2.09 1921	95 1954	53 1955	4.25 1897	102 1899	60 1906	2.28 1919	106 1947	66 1946	3.23 1919	108 1943	62 1893	6.76 1893	103 1949	67 1908	7.89 1895	98 1988	71 1944	11.87 1918
Blubaneshwar	90 1956	49 1952	1.40 1953	99 1953	51 1956	1.83 1954	105 1956	61 1952	0.82 1952	111 1954	67 1952	1.35 1952	111 1953	70 1954	3.72 1955	113 1952	71 1955	3.60 1954	97 1952	71 1952	3.10 1956
Cuttack	96 1882	46 1923	2.40 1919	102 1896	51 1934	3.86 1917	109 1902	58 1906	3.90 1911	111 1954	63 1905	3.72 1899	116 1934	69 1946	5.62 1893	117 1948	71 1955	8.10 1925	104 1897	70 1943	8.30 1943
Gopalpur	91 1946	50 1899	1.86 1908	98 1951	53 1934	5.29 1987	104 1956	60 1925	2.42 1944	102 1940	67 1955	2.17 1891	110 1915	68 1948	4.98 1940	106 1929	70 1939	6.76 1914	100 1920	69 1929	7.91 1936
Koraput	85 1955	43 1956	2.10 1953	89 1953	44 1956	0.12 1952	97 1953	51 1952	1.40 1954	99 1956	59 1956	2.12 1956	102 1956	63 1955	1.53 1951	104 1953	64 1955	5.63 1953	88 1952	65 1956	9.16 1951
Angul	93 1930	44 1923	1.92 1906	99 1934	48 1950	2.80 1932	108 1953	51 1906	1.68 1907	114 1941	61 1920	2.58 1928	115 1947	66 1910	3.32 1946	115 1942	70 1954	6.14 1925	100 1912	71 1945	9.60 1932

X-Highest maximum temperature.

N-Lowest minimum temperature.

R-Heaviest rainfall in 24 hours ending at 0830 hrs. I.S.T.

.. -Information not available.

APPENDIX I

August			September			October			November			December			Based on data since		
X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	Temp.	R. fall	
90 1954	66 1955	2.03 1955	90 1955	61 1956	1.15 1955	89 1955	53 1955	2.08 1954	83 1955	43 1954	1.81 1955	75 1956	31 1955	0.25 1955	1954	1954	Imphal.
95 1954	75 1956	3.28 1954	95 1955	74 1952	8.44 1956	95 1951	62 1954	2.27 1952	93 1952	54 1954	1.61 1951	87 1954	50 1955	0.60 1954	1951	1951	Dum Dum.
97 1944	74 1935	9.96 1888	97 1939	72 1940	14.53 1900	96 1951	63 1954	6.78 1882	93 1952	51 1883	3.35 1950	87 1954	45 1910	2.09 1883	1881	1881	Calcutta.
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Barrackpore.
98 1903	70 1953	9.15 1954	97 1921	72 1950	6.87 1899	93 1918	63 1898	12.66 1953	91 1944	54 1883	4.46 1955	85 1937	49 1896	3.62 1947	1881	1881	Saugor Islan
..	..	6.94 1946	..	..	5.40 1946	..	..	6.11 1931	..	..	5.22 1915	..	..	5.70 1909	..	1911	Sand heads.
97 1947	71 1955	7.92 1891	97 1938	71 1952	5.88 1948	96 1951	60 1954	12.80 1912	93 1957	50 1934	4.38 1941	89 1951	44 1937	2.44 1914	1921	1886	Midnapore.
98 1951	73 1954	5.12 1954	95 1951	72 1956	3.50 1956	93 1951	65 1954	7.90 1955	91 192	57 1953	2.55 1955	88 1956	50 1955	1.17 1954	1951	1951	Contai.
..	..	2.43 1952	..	..	3.82 1956	..	..	2.94 1956	..	..	2.25 1953	..	..	0.29 1954	..	1951	Bankura.
97 1945	71 1954	10.26 1909	100 1928	68 1953	12.00 1956	98 1951	61 1933	7.10 1942	96 1836	51 1883	4.21 19.6	89 1951	45 1883	2.74 1934	1881	1881	Burdwan.
97 1946	70 1949	6.51 1926	99 1955	70 1887	11.57 1900	98 1951	58 1935	6.93 1945	97 1952	47 1934	5.95 1889	90 1954	41 1937	1.47 1954	1886	1886	Kr'shnagar.
99 1932	71 1933	7.45 1935	97 1941	68 1946	10.59 1946	98 1932	59 1938	3.90 1929	97 1955	47 1926	3.90 1930	89 1946	44 1937	1.17 1929	1921	1916	Asansol.
93 1956	73 1955	4.58 1956	94 1955	69 1956	9.38 1956	94 1956	63 1955	2.07 1956	87 1955	57 1956	1.95 1956	85 1956	46 1955	1.14 1956	1955	1955	Suri.
98 1951	71 1933	7.22 1939	102 1947	71 1956	7.20 1900	100 1951	61 1954	11.27 1917	95 1952	47 1934	2.96 1930	90 1951	44 1935	1.32 1913	1881	1881	Berhampore
98 1933	73 1948	7.40 1918	97 1896	71 1940	8.50 1953	96 1932	59 1908	6.84 1894	92 1896	47 1934	2.53 1930	85 1951	41 1896	1.29 1913	1896	1886	Malda.
95 1953	73 1954	4.30 1955	97 1953	72 1954	9.61 1953	95 1955	61 1954	1.88 1953	87 1955	52 1953	0	85 1955	44 1954	0.17 1953	1953	1953	Cooch-Beha
99 1933	70 1918	8.66 1901	97 1933	70 1944	13.69 1886	96 1926	60 1947	9.62 1909	92 1952	49 1914	3.65 1924	86 1951	42 1918	2.12 1932	1891	1886	Jalpaiguri.
98 1953	73 1951	6.31 1952	97 1951	69 1956	5.84 1953	93 1956	56 1955	3.60 1956	92 1952	48 1953	0.80 1952	88 1951	40 1955	0.21 1956	1951	1951	Bagdogra.
96 1956	..	2.69 1956	95 1956	..	2.11 1956	96 1956	..	2.93 1956	91 1956	..	0.40 1956	88 1956	..	0	1956	1956	Baripada.
96 1955	71 1933	7.50 1926	96 1922	72 1919	7.46 1899	97 1925	60 1926	12.73 1941	94 1896	48 1892	7.27 1950	89 1944	44 1897	3.10 1947	1891	1886	Balasore.
95 1954	72 1933	5.82 1946	96 1951	71 1956	12.63 1950	96 1951	64 1952	6.68 1952	93 1949	53 192	8.18 1950	91 1949	47 1939	1.95 1917	1931	1931	Chandbali.
98 1899	71 1898	7.39 1896	97 1901	63 1893	8.30 1934	97 1899	62 1901	12.45 1928	93 1914	57 1926	9.56 19.5	91 1896	51 1895	3.50 1909	1891	1891	Puri.
95 1952	71 1953	4.24 1954	93 1956	72 1955	4.21 1955	92 1954	61 1954	7.41 1954	95 192	55 19.3	6.14 1955	90 1952	49 1955	0.43 1954	1952	1952	Bhubaneshv
99 1880	71 1943	12.63 1933	98 1901	71 1933	9.81 1891	102 1886	62 1926	11.52 1899	95 1896	51 1937	7.70 1950	92 1954	48 1922	2.16 1909	1881	1881	Cuttack.
99 1928	67 1911	9.05 1940	98 1920	69 1917	7.75 1886	97 1918	62 1897	11.09 1923	91 1953	54 1926	10.30 1923	90 1951	50 1902	4.16 1909	1891	1881	Gopalpur.
84 1955	62 1955	4.30 1953	85 1955	64 1952	3.60 1954	85 1951	51 1954	3.64 1955	83 1956	47 1955	1.72 1951	82 1956	41 1955	0.66 1952	1951	1951	Korapat.
97 1945	70 1956	10.13 1931	96 1943	71 1950	5.86 1939	96 1918	58 1926	4.64 1929	93 1918	48 1910	3.90 19.5	88 1941	45 1937	0.90 1909	1956	1906	Angul.

X=Highest maximum temperature.

N=Lowest minimum temperature.

R=Heaviest rainfall in 24 hours ending at 0830 hrs. I.S.T.

..=Information not available.

APPENDIX I

	January			February			March			April			May			June			July		
	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R
ambalpur	93 1889	40 1954	2.12 1921	100 1896	42 1950	2.17 1901	110 1888	52 1954	1.82 1951	114 1942	58 1905	1.78 1909	117 1948	69 1951	4.25 1891	116 1955	67 1903	10.02 1882	105 1902	65 1910	15.80 1889
aranguda	89 1955	43 1954	1.67 1953	96 1956	47 1956	0.93 1956	109 1956	53 1956	2.31 1951	112 1956	65 1955	1.25 1952	116 1956	70 1955	1.30 1956	115 1955	70 1955	6.26 1956	93 1956	72 1956	4.64 1952
atilagarh	89 1956	43 1954	1.08 1953	100 1953	50 1956	0.95 1956	108 1955	57 1952	1.05 1954	113 1936	69 1956	0.67 1955	116 1956	70 1951	3.02 1956	117 1955	72 1956	4.09 1955	99 1952	71 1956	4.52 1955
Nagpur rulia	86 1951	46 1954	0.50 1953	95 1952	45 1956	0.90 1956	107 1955	58 1954	1.39 1956	111 1954	61 1955	1.04 1952	114 1955	68 1952	1.12 1954	114 1953	69 1956	2.42 1951	98 1954	64 1953	5.84 1951
nsbedpur	88 1952	44 1953	0.36 1954	96 1953	48 1951	0.70 1956	107 1955	53 1954	1.33 1951	111 1954	63 1955	1.27 1952	111 1953	71 1951	1.21 1955	114 1953	71 1956	8.43 1953	98 1954	74 1955	7.38 1952
nsbedpur (P.B.O.)	88 1952	44 1955	0.59 1954	97 1952	48 1951	0.79 1956	108 1955	53 1951	1.33 1956	112 1956	65 1955	1.27 1952	113 1956	71 1951	1.50 1955	115 1955	73 1956	4.27 1952	98 1954	71 1956	7.38 1952
saibasa	92 1911	40 1934	2.96 1901	99 1911	44 1934	2.98 1936	108 1955	53 1927	1.73 1891	113 1941	60 1914	3.16 1916	116 1948	65 1938	2.30 1893	115 1953	68 1932	5.17 1919	106 1926	71 1943	7.67 1929
snchi	88 1931	39 1946	2.05 1945	93 1956	37 1950	3.09 193	103 1955	46 1898	3.24 1891	107 1938	55 1933	2.31 1944	110 1918	60 1952	4.12 1914	109 1955	65 1928	6.52 1898	101 1902	67 1951	8.50 1896
snchi(C.W.)	81 1956	45 1956	0.40 1956	92 1956	45 1956	0.80 1956	98 1956	56 1956	1.76 1936	105 1956	65 1956	0 1956	109 1956	71 1956	1.34 1956	91 1956	70 1956	1.50 1956	87 1956	70 1956	1.96 1956
uzairibagh	87 1881	36 1933	2.68 1915	92 1896	38 1915	2.50 1927	102 1892	44 1898	1.74 1946	107 1956	57 1914	2.38 1925	111 1897	61 1878	3.31 1887	110 1953	68 1914	9.81 1911	102 1901	69 1940	8.73 1953
ultonganj	90 1902	32 1923	3.04 1945	96 1914	33 1935	1.99 1908	109 1931	42 1898	1.45 1927	113 1898	53 1937	1.52 1914	116 1956	64 1932	2.45 1904	116 1897	68 1900	6.85 1907	110 1902	67 1928	11.45 1920
urnea	84 1902	35 1955	2.95 1889	94 1896	35 1891	2.35 1882	105 1941	44 1927	1.60 1950	110 1891	53 1935	4.50 1925	111 1916	60 1885	8.68 1887	109 1924	64 1936	10.56 1881	98 1942	70 1921	8.04 1916
urbesganj	82 1956	36 1955	0.43 1956	92 1955	44 1955	0.10 1955	102 1955	49 1935	0.52 1956	109 1954	55 1955	0.97 1955	106 1954	64 1956	4.78 1934	98 1955	69 1955	3.15 1954	95 1956	71 1954	7.75 1956
urbhanga	84 1932	34 1933	1.89 1945	92 1943	34 1935	1.73 1949	105 1941	45 1936	1.43 1897	111 1922	53 1912	2.38 1899	110 1916	63 1948	2.93 1923	110 1931	68 1955	9.60 1883	101 1912	71 1945	7.86 1926
otihari	83 1902	36 1935	2.15 1930	96 1896	32 1935	2.60 1889	104 1941	42 1945	2.18 1891	108 1934	48 1935	2.65 1899	112 1933	59 1932	4.10 1890	110 1935	67 1933	9.22 1919	100 1932	71 1953	10.03 1935
uzaffarpur	..	..	0.60 1956	..	..	0.35 1952	..	..	0.20 1956	..	..	1.20 1952	..	..	0.92 1933	..	..	3.93 1952	..	..	3.20 1952
napra	..	..	1.27 1953	..	..	0.59 1951	..	..	0.36 1952	..	..	0.67 1953	..	..	1.10 1953	..	..	5.33 1952	..	..	4.76 1952
trah	..	..	0.62 1955	..	..	0.79 1954	..	..	0.84 1952	..	..	2.75 1953	..	..	1.25 1952	..	..	4.15 1953	..	..	4.25 1955
atna	84 1939	37 1933	2.24 1891	94 1896	36 1935	1.60 1949	105 1941	46 1936	2.09 1881	110 1956	58 1935	1.84 1893	114 1941	63 1932	4.30 1887	115 1931	68 1912	13.87 1897	107 1903	70 1931	7.00 1893
atna (Acro- lrome).	83 1955	39 1956	0.48 1954	94 1952	43 1951	0.50 1954	104 1955	52 1954	0.29 1951	110 1956	61 1933	1.29 1953	112 1953	64 1954	0.92 1952	114 1953	70 1952	3.56 1953	98 1956	74 1956	5.03 1955
chri	85 1954	43 1956	0.89 1955	94 1952	47 1956	0.67 1952	106 1953	55 1952	0.63 1956	112 1956	63 1955	1.10 1951	116 1951	69 1955	0.21 1956	115 1953	70 1956	3.44 1951	106 1954	72 1951	4.55 1953
aya	89 1939	38 1955	2.60 1901	96 1896	39 1950	1.96 1889	107 1941	47 1945	1.48 1891	113 1938	58 1886	1.63 1933	116 1948	63 1893	2.13 1904	117 1931	65 1913	9.04 1883	110 1926	62 1886	8.26 1886
umui	85 1956	41 1955	0.95 1953	95 1952	45 1956	0.43 1955	104 1953	54 1955	0.96 1952	112 1956	63 1955	0.86 1953	113 1954	68 1955	2.47 1952	114 1953	72 1953	2.70 1956	99 1951	70 1952	4.82 1951
umka	88 1911	40 1945	1.92 1891	97 1952	41 1935	3.05 1940	108 1953	47 1936	2.78 1891	113 1951	59 1935	1.85 1916	116 1916	63 1934	4.18 1914	116 1926	63 1922	6.73 1927	105 1897	70 1948	5.76 1921
abour	84 1946	33 1934	0.88 1954	92 1919	37 1950	1.64 1942	106 1941	39 1945	1.35 1910	110 1956	56 1914	1.87 1942	112 1951	61 1934	1.95 1938	115 1931	67 1934	6.70 1950	100 1941	73 1956	5.71 1934
agalpur	85 1952	44 1956	1.03 1954	92 1956	48 1951	0.34 1955	104 1954	58 1936	0.20 1952	111 1956	56 1935	0.69 1952	112 1951	61 1955	1.25 1951	111 1953	70 1952	3.72 1952	98 1951	73 1956	3.24 1956
P., East bonda	84 1946	34 1933	2.07 1953	92 1952	38 1934	1.63 1935	106 1941	42 1915	1.58 1914	112 1938	57 1935	2.81 1933	114 1948	65 1932	4.10 1936	116 1912	62 1936	5.03 1938	105 1954	68 1949	8 1955

X = Highest maximum temperature.

N = Lowest minimum temperature.

R = Heaviest rainfall in 24 hours ending at 0830 hr: I S T.

.. = Information not available.

APPENDIX I

August			September			October			November			December			Based on data since		
X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	Temp.	R. fal	
95 1954	70 1956	10.47 1934	97 1930	69 1921	7.91 1955	97 1920	55 1921	6.84 1936	93 1946	46 1926	4.18 1935	99 1932	40 1902	1.54 1885	1881	1881	Sambalpur
92 1956	72 1956	4.90 1953	93 1955	71 1956	3.74 1955	91 1956	57 1954	4.34 1952	89 1956	52 1956	0.87 1953	88 1954	43 1955	0.41 1954	1954	1951	Jhansuguda
95 1954	71 1951	5.15 1955	95 1958	71 1956	5.79 1952	97 1951	59 1951	2.35 1951	92 1956	51 1952	0.54 1951	89 1956	48 1955	0.13 1954	1951	1951	Pitilagarh.
95 1954	68 1958	3.10 1952	97 1955	68 1953	4.24 1953	96 1951	62 1951	1.96 1953	93 1952	52 1952	2.18 1955	86 1956	49 1952	0.29 1956	1951	1951	Chota Nagri Purulia.
95 1951	78 1955	6.66 1953	95 1951	70 1956	2.59 1953	96 1951	59 1954	0.48 1954	90 1951	48 1952	2.72 1953	88 1954	45 1955	0.49 1956	1951	1951	Jamshedpur
94 1951	78 1955	3.64 1951	95 1951	69 1956	2.12 1955	96 1951	59 1954	2.14 1955	89 1956	48 1952	1.12 1951	87 1954	45 1955	0.50 1956	1951	1951	Jamshedpur (P.B.O.)
99 1947	70 1913	7.90 1941	96 1946	70 1950	6.12 1953	97 1925	57 1954	8.45 1912	93 1937	46 1934	3.23 1941	88 1946	41 1913	1.50 1907	1911	1891	Chaibasari
92 1945	67 1939	5.80 1915	96 1944	61 1949	6.02 1893	93 1899	51 1949	9.10 1911	93 1896	42 1949	3.13 1930	86 1950	40 1955	1.27 1928	1891	1891	Ranchi.
88 1956	71 1956	2.27 1956	88 1956	69 1956	2.16 1956	87 1956	62 1956	1.29 1956	80 1956	51 1956	0.29 1956	79 1956	46 1956	0.30 1956	1956	1956	Ranchi (C
92 1945	68 1942	7.09 1888	92 1945	64 1950	5.79 1898	92 1907	52 1934	4.74 1917	89 1895	40 1879	3.74 1924	85 1950	39 1945	1.55 1885	1878	1881	Hazaribag
99 1933	69 1916	7.60 1907	99 1897	63 1899	7.38 1946	99 1899	50 1921	2.96 1937	93 1918	41 1912	2.95 1924	88 1956	35 1913	1.65 1940	1896	1896	Daltonga
98 1939	71 1909	9.42 1918	99 1923	67 1890	12.54 1898	96 1956	50 1891	6.22 1929	91 1952	45 1883	4.52 1932	87 1953	38 1883	2.10 1913	1881	1881	Bihar Purnea.
97 1954	70 1955	5.26 1955	98 1955	69 1955	3.78 1956	96 1956	55 1954	4.27 1956	92 1955	49 1954	1.28 1956	88 1955	41 1955	0.10 1956	1954	1954	Forbesgar
99 1944	70 1912	10.41 1913	98 1944	67 1896	10.50 1925	97 1938	58 1914	7.35 1949	92 1943	45 1926	1.93 1912	85 1943	40 1908	0.99 1929	1881	1881	Darbhan
99 1953	71 1884	8.00 1915	99 1953	68 1890	8.45 1898	97 1954	55 1895	6.23 1893	96 1955	45 1949	1.97 1932	84 1955	35 1896	1.33 1932	1884	1886	Motihari
..	..	3.20 1954	..	..	3.90 1956	..	..	2.15 1953	..	..	0.35 1952	..	..	0	..	1951	Muzaffar
..	..	5.47 1952	..	..	3.78 1953	..	..	2.26 1953	..	..	1.76 1956	..	..	0.52 1956	..	1951	Chapra.
..	..	5.00 1953	..	..	4.80 1952	..	..	1.72 1955	..	..	2.02 1956	..	..	0.12 1956	..	1951	Arrah.
101 1903	71 1923	6.51 1914	100 1928	68 1890	14.41 1918	97 1932	59 1954	6.23 1891	93 1932	47 1934	2.51 1915	87 1951	43 1922	2.90 1929	1881	1881	Patna.
95 1956	71 1952	3.74 1953	99 1951	73 1956	4.30 1953	96 1951	54 1954	1.55 1956	92 1952	46 1952	1.40 1956	87 1951	42 1952	0.32 1956	1951	1951	Patna drome
95 1954	74 1953	3.25 1952	96 1951	73 1956	1.98 1955	96 1951	59 1954	0.76 1954	93 1951	49 1952	2.52 1956	89 1952	45 1955	0.43 1956	1951	1951	Dehri.
102 1935	71 1934	10.18 1942	101 1928	69 1890	7.89 1946	99 1918	55 1954	4.59 1894	95 1896	47 1953	3.22 1924	88 1929	39 1945	1.93 1885	1881	1881	Gaya.
95 1955	74 1953	2.25 1955	97 1951	71 1956	3.83 1953	96 1951	60 1952	3.88 1956	91 1951	47 1952	0.90 1956	85 1954	43 1955	0.18 1956	1951	1951	Jamui.
99 1988	70 1948	7.54 1888	98 1938	68 1956	10.51 1935	97 1957	58 1954	6.25 1890	95 1896	44 1934	4.53 1930	87 1954	41 1935	1.40 1913	1891	1886	Dumka.
97 1989	73 1933	4.21 1932	100 1933	71 1956	5.38 1912	96 1932	56 1954	6.12 1956	92 1944	43 1934	1.47 1956	85 1955	38 1942	0.31 1936	1931	1931	Sabour.
97 1953	74 1955	4.87 1955	99 1956	71 1953	3.74 1953	97 1951	61 1954	5.10 1956	94 1952	52 1952	1.46 1956	87 1951	47 1952	0.33 1954	1951	1951	Bhagal
99 1939	62 1956	12.07 1938	100 1932	66 1950	6.86 1933	99 1951	54 1954	5.71 1933	93 1940	42 1934	1.28 1932	84 1951	37 1951	1.16 1950	1932	1932	U. P., I Gonda.

X=Highest maximum temperature.

N=Lowest minimum temperature.

R=Heaviest rainfall in 24 hours ending at 0830 hrs. I.S.T.

..=Information not available.

APPENDIX I

	January			February			March			April			May			June			July		
	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R
Nautanwa	82 1956	37 1955	0.80 1955	89 1956	44 1956	0.62 1956	102 1955	52 1955	0.10 1956	110 1956	57 1955	0.06 1956	110 1955	62 1955	3.30 1956	111 1955	72 1956	7.19 1955	96 1956	74 1955	6.10 1955
Jorakpur	86 1937	35 1933	2.85 1883	97 1896	37 1905	1.30 1949	107 1941	47 1927	1.86 1891	111 1956	54 1905	2.65 1887	113 1906	62 1987	4.34 1956	115 1935	61 1949	8.21 1932	105 1926	66 1953	7.46 1937
Azamgarh	84 1952	38 1955	0.62 1951	95 1952	38 1950	1.48 1949	110 1949	51 1954	1.11 1952	112 1954	61 1953	0.56 1955	114 1953	67 1949	0.68 1949	116 1953	71 1955	3.21 1950	106 1954	70 1953	7.35 1955
Janaras	88 1882	37 1955	2.56 1942	97 1884	35 1905	2.64 1949	106 1955	44 1906	1.46 1940	112 1954	52 1935	1.36 1928	117 1834	66 1926	2.03 1889	117 1901	69 1914	6.28 1890	113 1901	68 1919	11.35 1914
Janaras (Babypur Aerodrome)	85 1952	35 1955	0.38 1956	94 1952	43 1956	0.84 1954	106 1953	50 1954	0.19 1956	111 1954	62 1955	0.06 1952	115 1952	71 1955	0.70 1956	115 1953	73 1956	2.98 1955	105 1954	74 1955	6.55 1955
Allahabad (Bansauli)	88 1934	36 1936	2.79 1900	97 1896	34 1905	2.02 1898	107 1931	45 1906	1.33 1950	113 1931	55 1905	1.04 1933	117 1922	63 1924	1.40 1917	118 1901	67 1930	6.93 1916	114 1901	72 1955	8.24 1920
Patna	90 1943	34 1935	1.83 1934	95 1956	37 1950	1.96 1942	107 1953	47 1935	2.08 1950	113 1948	58 1946	1.46 1935	117 1952	68 1948	0.67 1948	116 1955	70 1947	2.94 1955	110 1948	71 1949	6.90 1932
Banda	90 1950	37 1955	0.97 1955	96 1956	38 1950	1.45 1954	106 1953	51 1952	0.79 1960	113 1954	61 1955	0.20 1951	118 1950	70 1951	1.14 1951	116 1954	72 1950	3.17 1953	110 1949	71 1949	6.21 1951
Kanpur	88 1939	35 1950	1.91 1893	96 1930	33 1905	2.38 1942	109 1941	45 1945	2.43 1944	114 1938	52 1905	1.02 1928	117 1941	64 1909	100 1913	117 1931	69 1922	5.25 1916	113 1908	71 1948	6.60 1924
Lucknow	87 1943	34 1946	3.75 1883	95 1921	35 1905	2.42 1926	107 1945	45 1945	1.11 1940	114 1898	55 1903	5.10 1909	117 1944	64 1886	4.07 1891	119 1901	67 1886	9.02 1886	114 1908	71 1950	12.27 1947
Lucknow (Amausi Aerodrome)	83 1952	33 1955	1.37 1953	92 1952	40 1956	0.87 1954	103 1955	43 1954	1.00 1952	110 1954	55 1953	0.04 1953	113 1956	67 1958	1.60 1956	114 1953	71 1954	2.56 1955	107 1954	73 1953	5.24 1953
Hardoi	84 1952	37 1955	1.41 1954	91 1952	41 1951	1.38 1954	102 1953	49 1954	1.00 1951	110 1954	57 1955	0.25 1951	113 1954	69 1955	1.06 1956	119 1951	69 1954	5.28 1952	107 1951	73 1955	6.06 1953
Bakhtpur Kheri	82 1952	37 1955	1.96 1954	91 1953	43 1951	1.44 1954	103 1953	50 1954	0.68 1951	110 1954	59 1951	0.18 1952	113 1953	69 1955	1.84 1956	113 1953	69 1955	3.62 1952	105 1951	72 1954	5.84 1954
Bahraich	84 1946	33 1936	2.27 1953	94 1952	33 1905	1.95 1905	105 1941	42 1945	1.99 1914	112 1954	52 1943	2.40 1909	114 1953	60 1944	3.50 1938	116 1953	65 1914	10.6 1929	112 1902	69 1900	7.33 1955
P. West Orai	86 1952	39 1955	0.60 1954	93 1952	36 1951	0.90 1954	106 1955	49 1956	0.87 1951	111 1956	54 1954	0.21 1952	116 1954	67 1951	0.30 1953	116 1955	71 1950	9.25 1952	111 1951	69 1950	4.33 1953
Jhansi	92 1946	35 1935	1.77 1921	100 1930	33 1929	1.45 1944	110 1892	45 1945	1.66 1950	114 1914	58 1935	0.72 1933	117 1947	68 1947	1.60 1943	118 1924	69 1922	6.39 1942	114 1900	71 1936	9.43 1927
Agra	88 1946	28 1935	1.45 1921	96 1897	29 1929	2.04 1915	109 1892	42 1945	1.36 1915	113 1941	53 1940	1.28 1944	117 1943	62 1926	1.27 1926	119 1889	67 1922	3.83 1886	114 1919	70 1951	6.01 1886
Mainpuri	87 1946	29 1927	1.24 1929	94 1922	31 1905	2.87 1898	107 1945	41 1945	1.26 1915	114 1948	52 1903	1.17 1914	118 1943	60 1955	1.48 1938	118 1948	66 1949	7.52 1952	114 1903	65 1934	5.35 1927
Aligarh	87 1946	33 1935	1.60 1944	90 1956	35 1950	1.77 1954	107 1945	39 1945	0.97 1954	112 1948	55 1940	1.20 1933	115 1954	65 1947	1.55 1941	115 1955	69 1944	5.68 1933	111 1948	71 1947	6.48 1942
Barcilly	85 1943	33 1905	2.40 1921	91 1884	32 1905	3.75 1945	104 1945	41 1945	3.12 1926	111 1952	52 1905	1.50 1909	116 1884	61 1898	1.58 1956	115 1948	67 1912	8.60 1908	111 1903	63 1931	9.89 1882
Meerut	81 1952	35 1951	1.30 1954	88 1956	37 1950	2.22 1949	100 1953	47 1954	2.15 1951	108 1958	54 1955	1.20 1946	113 1954	67 1955	0.50 1953	112 1955	67 1951	1.56 1953	109 1949	72 1955	5.75 1953
Najibabad	76 1956	33 1955	1.89 1953	91 1956	37 1956	1.90 1954	98 1953	36 1952	1.46 1942	105 1956	53 1955	0.70 1953	110 1936	61 1955	1.20 1956	112 1955	65 1954	1.60 1954	106 1954	71 1956	5.19 1956
Roorkee	83 1898	30 1935	4.00 1833	89 1956	28 1905	4.37 1930	102 1945	37 1945	4.31 1955	110 1897	45 1905	1.51 1949	115 1884	58 1807	2.27 1910	116 1932	61 1900	5.86 1906	113 1931	70 1955	9.01 1889
Dehra Dun	79 1946	30 1945	3.13 1945	85 1956	30 1905	4.18 1949	99 1892	28 1945	3.21 1926	105 1892	46 1944	1.54 1898	109 1944	55 1947	3.12 1940	111 1902	57 1907	7.40 1925	105 1931	65 1902	1160 1890
Unjeh (I), New Delhi	85 1946	31 1935	4.60 1885	92 1934	35 1950	4.10 1942	106 1945	40 1945	2.45 1915	114 1941	53 1940	1.61 1909	117 1944	65 1952	1.20 1885	116 1945	66 1932	9.27 1936	113 1931	71 1943	5.62 1882
Hissar	87 1952	25 1929	2.30 1948	94 1956	28 1929	1.81 1937	114 1945	37 1945	1.55 1927	114 1949	47 1918	0.89 1944	119 1944	58 1948	1.62 1916	118 1954	64 1922	2.72 1939	117 1947	69 1952	4.10 1923

X—Highest maximum temperature.

N—Lowest minimum temperature.

R—Heaviest rainfall in 24 hours ending at 0830 hrs. I.S.T.

..—Information not available.

APPENDIX I

August			September			October			November			December			Based on data since		
X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	Temp.	R. fall	
104 1956	73 1955	4.60 1955	100 1954	70 1954	8.00 1956	97 1956	58 1955	3.65 1956	91 1954	45 1954	0.22 1956	86 1955	41 1954	0.22 1956	1954	1954	U.P. East-cont Nautanwa.
99 1953	70 1944	11.20 1912	99 1954	64 1912	9.43 1930	98 1938	55 1895	8.61 1894	93 1952	44 1953	2.20 1956	85 1951	37 1913	1.13 1929	1881	1881	Gorakhpur.
98 1951	73 1955	5.14 1953	101 1951	66 1950	8.30 1956	100 1951	56 1954	1.65 1949	97 1951	44 1952	1.61 1956	88 1954	41 1954	0.49 1950	1949	1949	Azamgarh.
104 1903	72 1955	12.66 1940	101 1938	64 1912	13.76 1943	103 1896	53 1919	5.47 1900	96 1941	44 1926	2.95 1927	91 1956	36 1913	2.09 1929	1881	1881	Banaras.
96 1954	74 1956	3.77 1953	97 1952	73 1956	4.20 1953	96 1952	55 1954	1.30 1956	92 1952	43 1952	5.53 1956	84 1954	41 1955	0.47 1953	1952	1952	Banaras (I batpur Aer drome).
104 1903	70 1953	13.20 1953	103 1928	65 1912	10.48 1938	105 1896	53 1898	6.43 1894	96 1918	42 1941	3.78 1956	88 1946	36 1902	2.15 1886	1881	1881	Allahabad (Banrauli)
103 1945	71 1953	7.55 1953	101 1932	67 1944	4.92 1939	102 1951	55 1952	3.32 1933	96 1944	43 1937	0.48 1936	88 1946	36 1945	1.55 1950	1932	1932	Fatehpur.
99 1954	72 1954	4.51 1950	100 1951	70 1951	4.32 1954	100 1951	56 1952	2.40 1956	100 1951	56 1952	2.40 1956	86 1950	41 1955	1.37 1950	1949	1949	Banda.
105 1903	71 1948	9.26 1915	104 1932	61 1896	9.21 1915	105 1896	52 1895	5.36 1894	97 1940	41 1948	2.33 1911	88 1940	35 1902	1.60 1950	1891	1891	Kanpur.
102 1911	71 1956	7.00 1881	103 1920	64 1899	9.85 1915	104 1896	52 1895	4.88 1949	95 1951	42 1926	1.90 1927	92 1896	35 1902	1.99 1885	1881	1881	Lucknow.
98 1954	72 1956	3.66 1955	97 1956	72 1956	3.60 1953	99 1952	51 1952	1.60 1954	93 1952	39 1952	0.19 1956	84 1954	36 1954	0.07 1952	1952	1952	Lucknow (Amausi Aerodrom)
98 1954	72 1953	7.77 1956	98 1951	62 1950	5.16 1954	100 1952	52 1954	3.43 1955	93 1951	43 1952	0.31 1951	82 1955	38 1954	0.62 1950	1950	1950	Hardoi
98 1952	72 1955	4.22 1955	97 1956	66 1950	2.25 1950	95 1953	55 1954	6.49 1956	93 1952	43 1952	0.21 1951	82 1953	40 1950	0.56 1950	1950	1950	Lakhimpur Kheri
101 1903	70 1956	12.83 1938	101 1907	65 1912	9.30 1919	100 1907	54 1935	6.75 1945	92 1951	41 1952	3.07 1927	89 1896	35 1913	3.19 1956	1896	1896	Bahraich
100 1954	68 1950	3.85 1954	100 1951	64 1950	2.26 1954	101 1951	54 1950	2.28 1956	94 1953	40 1950	0.32 1951	87 1954	36 1950	1.77 1950	1950	1950	U.P. West Orai.
108 1911	71 1939	9.83 1930	105 1913	65 1942	10.30 1910	105 1913	55 1937	4.71 1903	97 1941	41 1938	2.45 1927	91 1940	36 1937	0.96 1924	1681	1881	Jhansi
106 1918	70 1953	5.90 1952	105 1920	63 1935	11.26 1939	106 1920	49 1939	6.68 1910	97 1909	37 1926	1.80 1911	86 1954	31 1926	1.05 1923	1881	1881	Agra.
108 1918	71 1947	10.09 1949	105 1905	62 1942	7.34 1931	105 1896	51 1932	7.02 1903	97 1948	40 1938	1.25 1927	88 1956	30 1926	2.33 1923	1896	1896	Mainpur
105 1941	71 1953	4.54 1940	104 1938	66 1935	6.37 1947	107 1952	53 1949	5.46 1955	97 1944	41 1937	0.55 1951	91 1948	36 1945	0.70 1935	1932	1932	Aligarh.
105 1918	70 1916	8.83 1948	101 1932	62 1899	8.14 1912	101 1918	48 1867	7.07 1884	97 1920	42 1934	2.48 1904	85 1889	35 1913	1.48 1923	1681	1881	Barilly.
101 1954	71 1956	3.78 1952	100 1951	67 1950	5.64 1955	100 1951	53 1955	4.45 1954	92 1952	42 1952	0.49 1951	82 1955	36 1949	0.26 1946	1945	1945	Meerut.
98 1956	71 1956	4.68 1956	96 1956	67 1956	3.60 1954	95 1953	50 1954	6.32 1956	93 1952	36 1956	0.45 1956	80 1955	31 1956	0.07 1956	1952	1952	Najibat
103 1918	69 1914	7.59 1889	101 1899	60 1944	10.50 1888	101 1899	48 1953	9.12 1956	93 1952	37 1934	2.29 1911	83 1889	31 1902	2.29 1923	1861	1881	Roorkee
99 1949	67 1932	13.08 1951	94 1938	58 1940	8.37 1924	97 1907	49 1938	5.41 1956	67 1952	37 1938	3.10 1911	79 1944	32 1954	4.27 1923	1881	1881	Dehra
104 1943	72 1939	7.15 1891	105 1938	64 1944	6.95 1904	103 1951	49 1937	6.80 1954	95 1943	39 1938	0.82 1925	84 1948	30 1945	2.10 1894	1881	1881	Punjab New I
110 1948	71 1918	13.65 1926	108 1938	60 1923	10.20 1917	107 1951	47 1949	4.83 1917	98 1943	37 1926	0.68 1928	87 1953	30 1945	1.50 1924	1916	1916	Hisar.

X=Highest maximum temperature.

N=Lowest minimum temperature.

R=Heaviest rainfall in 24 hours ending at 0830 hrs I.S.T.

..=Information not available.

APPENDIX I

	January			February			March			April			May			June			July		
	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R
rajasth. Karnal	81 1952	35 1955	0.93 1955	89 1956	36 1950	1.80 1954	98 1953	45 1954	1.32 1956	109 1952	54 1951	1.04 1955	113 1952	65 1955	0.83 1951	113 1955	67 1951	2.70 1954	109 1951	69 1955	5.16 1950
Chandigarh	75 1956	32 1955	0.99 1955	91 1954	35 1956	1.67 1954	95 1955	43 1956	1.53 1956	104 1956	54 1955	0.57 1955	110 1954	59 1955	0.37 1955	110 1955	64 1956	2.14 1955	106 1954	65 1956	4.15 1955
Ambala	84 1946	30 1947	4.13 1953	92 1956	31 1905	5.78 1898	107 1945	39 1945	4.09 1956	113 1941	50 1944	3.23 1935	118 1944	58 1920	3.35 1913	118 1923	67 1939	4.17 1954	116 1903	67 1956	6.39 1945
Patiala	82 1952	33 1951	1.44 1953	92 1956	35 1950	2.33 1949	100 1953	45 1954	1.08 1951	109 1953	55 1951	0.41 1953	116 1954	63 1955	0.66 1950	115 1955	67 1952	2.77 1954	113 1951	72 1956	9.37 1949
Ludhiana	84 1910	29 1935	4.71 1911	92 1956	30 1905	2.83 1942	106 1945	39 1945	3.54 1951	115 1941	48 1935	2.20 1944	119 1944	60 1924	1.23 1913	118 1932	65 1952	4.28 1894	118 1881	61 1901	6.42 1893
Ferozepur	81 1952	32 1955	0.97 1956	92 1953	33 1951	1.14 1954	99 1955	41 1951	1.50 1956	111 1952	51 1955	0.59 1955	117 1954	58 1955	1.14 1951	116 1954	65 1952	1.67 1953	109 1955	70 1953	4.71 1951
Amritsar	77 1952	29 1955	1.06 1953	90 1953	31 1950	1.02 1950	96 1953	39 1954	1.55 1951	..	..	..	115 1954	56 1955	0.97 1951	116 1953	62 1952	1.32 1956	114 1954	69 1955	5.76 1948
Pathankot	79 1952	32 1956	2.58 1954	85 1956	38 1955	1.94 1954	93 1953	43 1954	3.27 1956	106 1953	45 1955	1.15 1955	112 1952	54 1955	0.96 1952	..	..	..	108 1951	63 1955	7.56 1954
Mandi	73 1956	27 1955	0.83 1955	82 1956	35 1956	0.40 1955	85 1956	42 1955	1.51 1955	99 1956	44 1955	1.05 1955	105 1956	51 1955	0.89 1956	107 1954	60 1954	2.50 1956	103 1954	61 1955	3.55 1954
ammu and ashmir. Srinagar	63 1902	6 1893	5.82 1930	69 1940	4 1895	2.61 1906	78 1931	22 1895	2.76 1920	88 1946	32 1905	2.49 1908	96 1936	37 1920	2.08 1931	100 1946	45 1935	2.59 1907	101 1946	51 1919	2.61 1931
Gulmarg	..	..	..	..	..	..	..	..	..	..	..	..	..	29 1955	..	85 1922	25 1935	3.28 1921	85 1918	37 1907	3.29 1903
Sonemarg	..	..	3.50 1950	..	..	3.04 1951	..	..	3.07 1951	..	..	2.20 1953	..	..	2.10 1955	..	..	1.90 1948	..	..	1.54 1948
Dras	41 1907	45 1909	2.50 1943	44 1928	46 1911	4.15 1928	50 1903	29 1911	4.13 1930	65 1946	13 1905	2.59 1928	77 1910	5 1947	3.17 1940	87 1906	14 1947	0.90 1935	93 1905	39 1907	1.45 1901
Kargil	44 1940	27 1919	2.40 1943	64 1914	25 1920	2.54 1930	65 1941	13 1916	4.11 1930	78 1923	11 1919	3.00 1922	91 1917	21 1920	2.35 1940	104 1914	31 1921	0.70 1921	110 1912	41 1918	0.95 1929
Leh	47 1916	19 1839	0.96 1893	55 1953	14 1943	0.66 1903	67 1908	3 1903	0.63 1930	75 1941	9 1903	0.87 1896	84 1893	24 1886	0.88 1951	93 1882	30 1886	0.46 1892	92 1883	33 1929	0.93 1832
Skardu	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gurez	..	..	3.00 1954	..	..	2.50 1949	..	..	2.50 1949	..	..	1.40 1956	..	..	2.00 1949	..	..	2.50 1949	..	..	1.80 1953
Gilgit	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Misgar	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Jammu	80 1926	33 1945	3.73 1932	89 1947	34 1929	4.36 1914	99 1945	40 1945	3.50 1915	111 1941	50 1918	2.60 1914	115 1954	59 1914	1.30 1930	117 1953	65 1936	4.52 1953	113 1951	61 1951	7.05 1917
rajasthan, West. Sriganganagar	97 1948	28 1945	1.38 1948	95 1953	27 1950	1.11 1948	106 1942	33 1945	1.16 1948	115 1941	47 1940	0.88 1944	121 1944	53 1945	1.89 1951	112 1934	65 1952	3.90 1938	116 1948	71 1952	3.39 1956
Bikaner	88 1952	28 1954	1.00 1912	99 1953	28 1950	1.84 1906	109 1924	31 1898	1.73 1911	117 1925	47 1953	1.22 1944	121 1914	62 1930	1.90 1883	120 1897	64 1888	4.36 1894	117 1901	69 1931	5.28 1920
Jaisalmer	87 1952	24 1949	0.19 1953	100 1953	28 1951	0.21 1952	104 1949	43 1954	0.35 1955	111 1949	51 1953	0.06 1951	118 1956	70 1955	0.63 1951	112 1955	70 1951	0.78 1953	113 1951	71 1955	3.86 1954
Jodhpur	91 1932	28 1905	1.58 1948	101 1953	31 1920	0.89 1939	107 1946	41 1908	0.81 1926	115 1925	49 1918	1.05 1919	120 1932	63 1909	1.50 1916	118 1901	67 1914	6.02 1917	114 1901	67 1926	7.64 1943
Phalodi	88 1946	26 1942	1.62 1944	100 1953	33 1951	0.92 1948	107 1945	35 1945	0.51 1948	112 1948	54 1953	0.20 1944	117 1956	67 1944	1.33 1953	116 1944	69 1945	3.34 1945	114 1947	72 1950	4.14 1948
Barmer	92 1949	29 1935	2.36 1945	103 1943	40 1934	0.93 1939	110 1946	48 1945	0.97 1940	114 1949	54 1945	0.91 1933	120 1932	62 1931	1.44 1945	116 1946	66 1931	2.17 1933	112 1939	67 1936	4.90 1944

X—Highest maximum temperature.

N—Lowest minimum temperature.

R—Heaviest rainfall in 24 hours ending at 0830 hrs. I.S.T.

..—Information not available.

APPENDIX I

August			September			October			November			December			Based on data since		
X	N	R	X	N	R	X	N	R	X	N	R	K	N	R	Temp	R, fall	
105 1952	71 1952	6.60 1952	101 1951	44 1949	4.63 1950	100 1951	53 1954	5.13 1956	94 1953	42 1953	0.69 1951	81 1954	33 1954	0.13 1953	1949	1949	Punjab Karnal
97 1956	66 1956	2.99 1955	97 1956	63 1955	9.25 1955	91 1956	49 1955	2.51 1955	87 1956	41 1956	0 1956	80 1955	34 1955	0.25 1955	1954	1954	Chandigarh
111 1918	68 1939	9.01 1896	105 1951	60 1912	8.85 1945	103 1941	47 1898	5.45 1916	96 1947	37 1926	5.32 1951	85 1944	31 1913	1.87 1924	1896	1896	Ambala
104 1954	71 1956	6.64 1955	105 1951	65 1950	2.95 1955	102 1951	50 1948	3.19 1955	92 1952	40 1952	2.05 1951	83 1953	33 1954	0.20 1949	1948	1948	Patiala
112 1884	71 1953	7.28 1887	107 1905	60 1940	8.13 1883	104 1941	49 1932	13.95 1955	95 1909	36 1937	0.73 1955	85 1944	30 1930	2.38 1894	1881	1881	Ludhiana
104 1955	71 1950	4.60 1953	103 1954	65 1953	7.23 1950	103 1952	47 1952	2.49 1955	95 1951	40 1956	1.68 1951	83 1953	29 1950	0.15 1953	1950	1950	Ferozepur
104 1954	69 1951	3.14 1956	105 1949	63 1953	4.82 1954	101 1951	47 1953	7.50 1955	90 1952	31 1949	0.76 1951	80 1953	27 1950	0.80 1953	1948	1948	Amritsar
97 1953	66 1952	5.92 1956	98 1952	60 1953	5.40 1954	98 1952	51 1955	10.94 1955	90 1952	42 1955	1.05 1951	79 1955	34 1955	0.96 1953	1951	1951	Pathankot
93 1956	65 1956	5.76 1954	93 1956	60 1956	3.80 1954	88 1956	44 1954	2.94 1955	81 1956	37 1956	0.83 1956	77 1955	28 1954	0.35 1956	1945	1945	Mandi
98 1946	50 1932	2.65 1929	95 1934	40 1940	4.03 1928	93 1931	29 1934	2.36 1917	75 1946	48 1934	1.86 1946	65 1901	11 1902	2.54 1904	1891	1891	Jammu & Kashmir Srinagar
80 1922	37 1951	4.54 1929	77 1934	27 1940	3.58 1905	..	29 1910	..	..	..	..	..	..	..	1901	1901	Gulmarg
..	..	1.43 1956	..	..	9.89 1954	..	..	9.20 1956	..	..	1.15 1949	..	..	2.14 1950	..	1948	Sonamarg
89 1907	28 1913	1.52 1944	65 1906	22 1906	2.30 1928	77 1916	4 1937	3.50 1917	59 1902	21 1911	2.43 1946	49 1904	49 1910	3.21 1921	1901	1901	Dras
105 1912	42 1920	1.00 1923	101 1914	31 1920	0.80 1941	90 1916	13 1917	2.16 1917	68 1915	15 1937	0.60 1918	54 1941	13 1937	2.11 1941	1911	1911	Kargil
90 1946	37 1941	2.02 1933	87 1883	24 1940	1.02 1893	78 1916	18 1923	1.54 1955	68 1929	7 1934	0.26 1946	55 1891	14 1937	0.60 1944	1881	1881	Leh
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Skardu
..	..	2.48 1956	..	..	6.40 1953	..	..	6.50 1949	..	..	0.65 1950	..	..	4.00 1948	..	1948	Gurez
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Gilgit
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Misgar
107 1918	64 1912	9.00 1926	101 1954	59 1950	7.25 1950	99 1951	54 1914	6.30 1955	89 1951	44 1949	1.58 1928	81 1944	38 1914	2.63 1924	1911	1911	Jammu
109 1946	71 1950	5.75 1948	109 1939	60 1944	3.91 1945	106 1952	44 1949	0.31 1956	99 1943	35 1938	0.73 1951	86 1953	29 1950	0.48 1947	1934	1937	Rajasthan West Sringar gar
110 1899	70 1889	5.59 1909	111 1915	67 1924	6.52 1945	108 1951	46 1949	3.77 1917	99 1943	33 1937	1.65 1951	90 1954	27 1950	1.18 1892	1881	1881	Bikaner
106 1954	71 1955	4.11 1955	110 1949	71 1953	1.06 1953	108 1951	47 1949	0.12 1954	100 1950	41 1956	0 1956	91 1953	34 1955	0.08 1956	1948	1948	Jaisalmer
107 1902	69 1927	7.26 1927	109 1915	64 1908	8.50 1924	108 1920	50 1949	5.59 1917	99 1918	42 1938	1.06 1893	92 1953	31 1945	0.90 1937	1891	1891	Jodhpur
107 1949	71 1956	2.85 1953	105 1951	69 1948	2.50 1954	108 1941	48 1949	0.95 1956	98 1943	41 1946	0.07 1951	90 1953	33 1945	0.40 1942	1941	1941	Phalodi
104 1955	66 1941	10.06 1944	109 1951	62 1935	2.18 1955	109 1951	57 1933	0.71 1956	100 1951	44 1946	0.15 1956	94 1944	38 1936	0.55 1942	1931	1931	Barmer

X=Highest maximum temperature.

N=Lowest minimum temperature.

R=Heaviest rainfall in 24 hours ending at 0830 hrs. I.S.T.

..=Information not available.

APPENDIX II

	January			February			March			April			May			June			July			
	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	
Rajasthan,																						
East																						
Alwar	83 1956	37 1956	0.02 1956	94 1956	40 1956	10 ..	100 1956	50 1956	0.62 1956	108 1956	61 1956	0.05 1956	123 1956	73 1956	0.06 1956	114 1956	80 1956	0.25 1956	102 1956	73 1956	1.55 1956	
Sikar	87 1949	28 1955	0.64 1948	97 1953	27 1951	0.65 1954	103 1949	40 1956	0.43 1956	111 1949	47 1955	0.21 1953	118 1956	60 1955	0.51 1950	111 1948	69 1954	2.10 1955	112 1947	71 1956	3.65 1949	
Jaipur	89 1932	28 1905	1.45 1892	98 1953	28 1905	2.25 1954	109 1892	38 1898	1.33 1926	112 1914	49 1905	0.81 1944	118 1932	60 1920	1.19 1930	117 1897	69 1934	3.43 1920	116 1901	69 1931	6.53 1888	
Jaipur (Sanganer Aerodrome)	84 1952	32 1954	0.61 1955	97 1953	38 1956	0.49 1952	102 1953	47 1956	0.52 1956	109 1953	55 1955	0.25 1952	115 1956	65 1955	0.29 1955	114 1954	73 1953	0.87 1952	102 1953	73 1956	3.76 1954	
Dholpur	82 1956	38 1956	0.15 1956	92 1956	40 1956	0.03 1956	110 1955	50 1955	0.23 1956	108 1955	59 1956	0 ..	115 1956	73 1956	0 ..	115 1955	75 1955	3.00 1955	104 1955	74 1956	2.35 1956	
Ajmer	89 1902	28 1935	1.83 1948	96 1953	30 1905	1.80 1907	107 1892	36 1898	1.67 1932	110 1896	49 1886	1.50 1909	114 1912	60 1881	1.70 1925	114 1901	63 1944	4.70 1917	112 1901	68 1931	5.83 1943	
Kotah	93 1912	35 1929	1.41 1915	101 1943	36 1929	2.00 1915	109 1945	45 1945	0.70 1944	114 1925	58 1905	1.07 1933	118 1944	66 1930	2.10 1917	118 1945	70 1941	5.20 1917	115 1901	72 1939	9.81 1945	
Chambal	85 1956	32 1956	0.04 1956	95 1956	35 1956	0.20 1956	102 1956	42 1956	0.08 1956	109 1956	58 1956	0 ..	115 1956	74 1955	0 ..	112 1955	68 1956	1.50 1956	99 1955	69 1956	7.54 1956	
Jhalawar	91 1932	31 1935	1.88 1941	98 1953	35 1934	0.45 1942	107 1945	41 1943	0.50 1940	112 1942	58 1955	1.37 1933	116 1932	66 1955	1.07 1936	115 1945	70 1950	9.92 1945	108 1931	69 1955	9.71 1947	
Udaipur	87 1952	35 1954	1.95 1953	98 1953	34 1951	0.55 1948	101 1949	48 1956	0.79 1954	107 1948	51 1955	1.06 1953	111 1956	69 1955	0.39 1949	107 1955	67 1955	2.55 1945	1.00 1948	70 1954	4.17 1950	
Erinpura (Jwai Dam)	86 1956	41 1956	0.29 1955	97 1955	43 1956	0.10 1955	103 1955	49 1956	0 ..	106 1956	58 1955	0 ..	112 1956	75 1955	0.04 1955	109 1955	70 1955	1.26 1955	100 1955	73 1956	1.40 1956	
Madhya Bharat																						
Gwalior (P.B.O.)	89 1943	30 1954	1.40 1948	98 1949	33 1950	0.81 1954	107 1945	45 1945	0.57 1956	114 1944	55 1953	0.60 1943	119 1947	69 1947	1.65 1953	117 1945	70 1944	6.40 1952	111 1948	73 1942	5.90 1947	
Sheopur Kalan	89 1952	33 1954	0.63 1953	99 1953	36 1951	0.82 1954	104 1955	45 1956	1.17 1956	111 1953	57 1955	0.30 1952	118 1954	70 1954	0.29 1955	116 1954	72 1955	3.51 1955	108 1951	72 1953	3.59 1956	
Guna	89 1946	28 1934	1.20 1941	97 1953	30 1950	1.60 1942	106 1945	41 1945	2.36 1950	110 1948	52 1940	0.14 1953	115 1954	64 1937	1.76 1958	115 1945	68 1944	7.54 1945	107 1931	69 1941	7.47 1935	
Rajgarh	87 1956	37 1956	0.42 1956	96 1956	36 1956	0.08 1956	104 1956	48 1956	0 ..	110 1956	58 1956	0 ..	114 1956	73 1956	1.08 1956	103 1956	76 1956	1.06 1956	99 1956	72 1956	6.05 1956	
Neemuch	91 1898	30 1905	2.69 1891	98 1887	31 1886	1.76 1915	107 1892	40 1905	1.97 1923	112 1925	48 1905	1.24 1888	116 1912	57 1920	1.94 1883	115 1897	60 1885	6.80 1933	108 1901	58 1910	6.00 1943	
Ratlam	89 1952	41 1952	0.71 1953	100 1953	42 1951	0.32 1956	106 1952	53 1950	0.78 1954	107 1953	59 1955	0.08 1953	111 1956	70 1956	0.85 1956	108 1953	70 1952	3.89 1951	98 1956	68 1951	5.23 1954	
Alirajpur	86 1956	46 1956	0.09 1956	99 1956	45 1956	0.02 1956	104 1956	55 1956	0 ..	109 1956	63 1956	0 ..	109 1956	71 1956	1.05 1956	98 1956	73 1956	2.72 1956	94 1955	71 1956	3.11 1956	
Indore	90 1938	30 1935	3.17 1920	98 1953	27 1929	1.26 1888	106 1892	41 1898	0.76 1944	110 1896	46 1905	2.01 1895	114 1916	62 1881	3.90 1886	113 1897	66 1949	5.00 1895	101 1931	66 1910	11.55 1913	
Bhopal (Bairagarh)	90 1934	33 1935	1.35 1948	97 1953	35 1950	0.61 1944	104 1945	46 1945	1.38 1936	110 1942	54 1935	0.53 1937	114 1947	67 1933	2.86 1956	111 1945	68 1952	4.76 1945	105 1931	67 1946	8.59 1939	
Vindhya Pradesh																						
Newgong	90 1946	29 1935	1.83 1921	98 1934	31 1905	1.89 1946	107 1931	41 1945	1.02 1913	113 1948	53 1905	1.60 1909	117 1947	57 1932	1.22 1913	116 1954	69 1914	18.22 1897	114 1931	71 1951	9.16 1902	
Satna	90 1946	33 1933	3.20 1955	95 1956	34 1905	1.94 1936	106 1945	40 1949	1.73 1893	113 1896	54 1918	2.08 1946	116 1947	65 1933	1.32 1914	118 1954	67 1929	22.15 1882	113 1931	64 1929	8.25 1894	
Umaria	94 1943	32 1933	2.41 1939	98 1954	33 1950	2.19 1950	104 1955	41 1945	1.71 1941	112 1942	55 1951	1.24 1937	114 1954	65 1937	0.86 1949	114 1945	68 1948	8.26 1946	101 1954	69 1939	7.02 1946	
Madhya Pradesh, East																						
Gondia	89 1950	44 1951	1.67 1948	99 1951	44 1950	1.90 1947	107 1953	53 1952	1.35 1951	110 1952	66 1949	1.02 1953	115 1954	72 1951	0.52 1956	114 1953	71 1948	8.53 1955	99 1951	71 1952	5.37 1947	
Pendra	86 1946	38 1937	1.77 1933	94 1953	35 1929	1.69 1917	103 1955	48 1906	2.79 1956	109 1942	56 1930	2.67 1926	111 1928	64 1933	2.20 1925	111 1942	62 1915	9.53 1946	99 1954	65 1942	6.56 1953	

X=Highest maximum temperature.

N=Lowest minimum temperature.

R=Heaviest rainfall in 24 hours ending at 0830 hrs. I.S.T.

..=Information not available.

APPENDIX I

August			September			October			November			December			Based on data since		
X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	Temp.	R. fall	
96 1956	73 1956	2.39 1956	99 1956	71 1956	2.13 1956	92 1956	62 1956	3.61 1956	85 1956	51 1956	0 ..	82 1956	..	0.32 1956	1956	1956	Rajasthan, East Alwar
103 1955	70 1955	3.53 1947	103 1954	62 1950	2.64 1955	105 1951	44 1949	1.95 1955	92 1952	36 1946	0.87 1951	87 1953	29 1954	0.80 1946	1946	1946	Sikar
107 1911	70 1954	7.05 1932	107 1899	63 1942	7.38 1924	104 1899	52 1934	4.50 1924	97 1909	38 1938	1.27 1893	88 1953	33 1945	1.63 1924	1881	1881	Jaipur.
101 1955	66 1953	3.92 1956	100 1954	66 1955	3.04 1956	100 1952	53 1955	2.34 1956	92 1953	44 1956	0.15 1954	86 1954	35 1955	0 ..	1952	1952	Jaipur (Sa ganer A drome)
99 1956	70 1955	3.30 1956	99 1956	71 1956	2.15 1955	92 1956	54 1955	4.15 1955	90 1955	39 1956	0 ..	82 1955	36 1955	0.12 1956	1955	1955	Dholpur
104 1883	69 1935	6.48 1928	105 1915	61 1950	6.15 1924	102 1951	46 1889	4.70 1956	95 1901	37 1926	1.30 1893	88 1890	33 1936	2.23 1913	1881	1881	Ajmer
106 1911	66 1947	6.78 1955	105 1951	68 1933	7.30 1926	106 1930	58 1952	3.86 1930	99 1901	46 1926	2.13 1927	93 1941	39 1926	1.18 1927	1901	1901	Kotah
99 1955	70 1956	4.32 1956	105 1956	63 1956	4.10 1955	94 1955	47 1955	1.79 1955	89 1956	38 1956	0 ..	87 1956	30 1955	0.04 1956	1955	1955	Chambal
100 1955	65 1954	7.27 1942	102 1951	66 1938	4.93 1935	104 1951	51 1934	3.00 1956	96 1941	42 1956	2.60 1933	92 1941	36 1945	1.74 1947	1931	1931	Jhalawar
95 1955	66 1950	3.81 1947	100 1951	60 1950	7.24 1950	99 1951	50 1955	1.65 1956	95 1951	42 1956	1.50 1948	89 1954	33 1950	0.21 1956	1947	1947	Udaipur
99 1955	73 1956	2.36 1955	96 1956	70 1955	6.02 1955	95 1955	58 1956	85 1956	92 1955	50 1956	0 ..	85 1956	44 1955	0 ..	1955	1955	Erinpura wai Dam
101 1954	70 1955	4.27 1954	99 1951	65 1942	6.26 1945	103 1951	48 1952	5.93 1955	96 1941	39 1946	0.46 1946	88 1954	32 1945	1.25 1952	1941	1941	Madhya I rat. Gwalior (P.B.O.)
102 1955	70 1953	3.39 1952	101 1951	68 1953	2.72 1954	105 1951	52 1952	3.97 1956	95 1953	43 1956	0.75 1951	89 1953	33 1954	0.40 1956	1951	1951	Sheopur K
98 1955	67 1952	7.15 1934	98 1932	62 1942	11.75 1947	101 1951	49 1943	2.50 1956	94 1951	37 1940	2.54 1946	89 1941	31 1950	1.40 1946	1931	1931	Guna.
94 1956	69 1956	5.60 1956	96 1955	59 1956	4.60 1955	94 1956	49 1955	1.44 1955	86 1956	40 1956	0 ..	86 1956	32 1955	2.25 1956	1955	1955	Rajgarh.
100 1899	65 1913	7.00 1941	102 1951	63 1902	6.99 1947	103 1899	51 1890	4.02 1955	96 1901	41 1938	2.03 1934	89 1953	33 1929	0.88 1892	1881	1881	Neemuch.
95 1954	68 1956	4.76 1952	100 1951	61 1954	10.05 1950	101 1951	55 1952	6.39 1955	94 1951	49 1956	0.62 1951	90 1954	43 1955	0.17 1950	1948	1948	Ratlam.
90 1956	69 1956	4.42 1955	94 1956	68 1956	4.40 1955	92 1956	55 1956	5.63 1955	90 1956	45 1956	0 ..	88 1956	43 1955	2.00 1956	1955	1955	Alirajpur.
95 1899	66 1952	8.26 1928	99 1899	62 1902	5.38 1933	100 1899	48 1890	3.09 1938	95 1925	42 1938	2.54 1936	91 1896	34 1936	1.77 1928	1881	1881	Indore.
95 1932	67 1956	7.42 1944	97 1951	63 1951	9.18 1947	100 1951	53 1943	4.87 1955	92 1951	43 1941	2.69 1936	91 1941	38 1936	1.25 1935	1931	1931	Bhopal (E garh).
101 1945	70 1893	9.74 1903	103 1929	63 1944	6.66 1906	103 1930	49 1890	5.00 1926	96 1929	39 1941	2.96 1910	91 1929	32 1926	3.33 1886	1881	1881	Vindhya I desh. Nowgong
97 1932	70 1954	11.80 1919	99 1932	62 1912	7.01 1951	101 1896	50 1890	6.00 1882	95 1899	41 1941	3.33 1956	90 1948	34 1937	1.88 1929	1881	1881	Satna.
95 1945	68 1951	11.89 1953	94 1941	64 1944	4.98 1933	95 1941	49 1933	3.30 1937	91 1941	39 1937	3.13 1946	89 1941	33 1937	1.62 1940	1932	1932	Umaria.
94 1947	65 1953	5.83 1947	94 1951	69 1952	3.74 1956	94 1953	56 1952	4.20 1949	91 1946	48 1950	2.15 1948	88 1952	45 1955	0.52 1956	1946	1946	Madhya desh, Ea Gondia.
91 1925	65 1910	10.32 1953	91 1938	64 1935	5.92 1926	93 1920	53 1933	3.60 1915	89 1909	43 1926	2.30 1924	86 1941	39 1936	1.46 1906	1906	1906	Pendra.

X = Highest maximum temperature.

N = Lowest minimum temperature.

R = Heaviest rainfall in 24 hours ending at 0830 hrs. I.S.T.

.. = Information not available.

APPENDIX I

	January			February			March			April			May			June			July				
	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R		
Madhya Pradesh—cont.																							
Raigarh	91 1955	46 1951	1.55 1953	99 1955	49 1956	0.92 1956	108 1955	57 1952	2.40 1951	113 1956	69 1952	1.15 1951	116 1956	73 1956	1.59 1956	117 1953	73 1956	5.50 1955	98 1952	72 1955	7.04 1952		
Ambikapur	82 1956	34 1954	0.79 1954	92 1954	39 1956	1.89 1956	101 1955	47 1955	0.86 1952	106 1956	55 1955	0.84 1951	110 1956	66 1951	2.01 1956	110 1955	70 1956	2.02 1956	96 1954	69 1951	4.30 1954		
Champa	90 1950	46 1954	2.52 1945	98 1953	47 1950	1.00 1956	107 1955	56 1952	3.47 1951	113 1952	67 1950	0.52 1945	117 1948	72 1956	1.48 1956	117 1953	71 1949	3.80 1956	103 1954	71 1946	5.59 1952		
Raipur	95 1955	41 1908	2.18 1921	100 1899	41 1893	2.26 1917	110 1892	47 1898	2.20 1906	115 1942	59 1905	1.51 1909	117 1935	58 1904	3.16 1904	117 1931	61 1884	7.98 1919	103 1931	68 1884	8.39 1884		
Kanker	91 1931	39 1946	2.10 1943	95 1953	39 1984	2.08 1950	104 1942	50 1948	1.67 1944	110 1942	60 1944	1.74 1951	112 1953	64 1945	1.80 1932	115 1931	64 1936	9.68 1940	95 1954	66 1940	11.38 1951		
Chanda	96 1900	37 1839	1.55 1924	103 1951	39 1905	3.71 1898	112 1892	45 1898	2.71 1893	115 1942	53 1905	2.57 1914	119 1912	66 1919	1.75 1903	117 1931	68 1919	7.17 1887	105 1897	64 1954	7.53 1887		
Sironcha	92 1955	46 1951	0.13 1953	100 1953	51 1956	0.43 1952	107 1953	57 1952	3.74 1951	112 1956	70 1953	0.82 1953	116 1954	70 1955	1.04 1955	116 1953	72 1955	3.20 1953	102 1951	72 1951	6.51 1956		
Jagdaplur	91 1954	40 1913	1.60 1926	98 1953	41 1943	4.74 1919	105 1953	49 1948	1.80 1927	110 1941	57 1943	2.14 1939	115 1912	63 1917	2.53 1925	112 1953	63 1913	5.24 1940	96 1920	67 1941	7.12 1934		
Madhya Pradesh, West.																							
Buldhana	91 1956	50 1953	1.21 1955	98 1953	40 1950	0.05 1952	102 1953	60 1952	1.03 1955	106 1956	68 1951	0.44 1953	108 1954	68 1956	1.19 1956	107 1953	67 1955	2.79 1953	94 1952	66 1949	4.84 1953		
Akola	96 1930	39 1937	1.93 1922	104 1953	36 1887	1.66 1907	112 1892	42 1908	1.52 1944	115 1942	52 1905	2.31 1937	118 1947	65 1947	1.76 1943	117 1923	68 1916	7.40 1955	105 1900	69 1941	7.42 1894		
Amravati	95 1889	43 1934	2.33 1911	102 1953	41 1887	2.03 1928	111 1892	48 1898	1.66 1939	115 1898	55 1905	2.61 1937	116 1954	65 1917	1.86 1887	116 1923	67 1916	6.11 1927	103 1931	66 1890	9.06 1888		
Yeotmal	92 1950	49 1954	0.72 1955	100 1953	45 1950	1.23 1950	107 1953	59 1950	0.53 1951	110 1955	64 1955	1.84 1952	115 1954	68 1955	1.90 1956	114 1953	69 1955	4.11 1953	101 1950	68 1953	3.61 1955		
Khandwa	96 1932	35 1946	1.95 1920	102 1953	33 1929	1.90 1928	110 1892	43 1898	1.08 1881	115 1896	52 1905	1.03 1891	117 1947	63 1881	2.80 1956	114 1942	66 1949	6.03 1940	104 1900	68 1941	9.47 1927		
Hoshangabad	90 1950	38 1935	1.58 1919	100 1953	43 1950	1.44 1917	106 1953	51 1935	1.61 1914	113 1942	61 1951	1.90 1890	115 1954	68 1947	1.41 1893	114 1953	70 1946	7.04 1895	106 1931	66 1951	9.40 1898		
Sagar	89 1912	35 1934	3.31 1887	95 1953	34 1929	1.70 1951	106 1892	45 1898	1.37 1904	111 1896	51 1926	0.94 1937	114 1914	64 1920	2.29 1903	114 1897	65 1922	9.27 1890	106 1931	61 1904	11.20 1904		
Jabalpur	91 1946	34 1946	2.51 1919	99 1953	32 1905	2.19 1898	106 1892	38 1898	1.56 1927	113 1942	51 1905	1.98 1935	116 1954	63 1937	2.90 1885	115 1889	67 1922	7.29 1882	107 1902	69 1930	13.50 1915		
Mandla	87 1954	33 1954	1.51 1953	96 1953	38 1956	0.62 1953	103 1955	46 1956	1.17 1951	109 1954	52 1956	0.76 1951	113 1954	65 1951	0.79 1956	112 1955	70 1956	1.71 1955	101 1954	70 1955	5.83 1953		
Seoni	91 1882	37 1937	1.95 1943	99 1896	38 1911	2.76 1898	105 1899	43 1910	1.66 1936	111 1942	53 1905	1.65 1937	112 1954	59 1917	2.92 1918	113 1942	64 1928	11.00 1884	100 1931	64 1941	10.87 1929		
Chhindwara	86 1950	38 1951	0.88 1955	96 1953	37 1950	1.49 1950	101 1953	53 1955	0.54 1954	106 1949	60 1955	0.47 1953	109 1954	69 1956	1.88 1956	108 1955	65 1949	2.91 1956	94 1952	68 1952	3.60 1954		
Betul	87 1950	37 1953	0.32 1954	99 1953	34 1950	0.14 1950	102 1953	49 1950	0.50 1950	107 1954	59 1955	0.49 1952	110 1954	67 1950	0.68 1956	108 1953	59 1949	2.90 1951	94 1951	68 1954	5.11 1954		
Nagpur	95 1900	39 1937	1.98 1948	102 1887	41 1950	2.03 1942	113 1892	47 1898	1.77 1881	115 1942	57 1905	2.34 1937	118 1954	67 1917	2.30 1909	117 1931	68 1919	12.40 1911	105 1897	67 1942	8.63 1898		
GUJARAT																							
Deesa	96 1932	28 1935	1.11 1940	105 1953	31 1929	1.24 1941	115 1892	42 1905	0.95 1911	115 1897	50 1905	0.95 1923	122 1912	64 1920	2.70 1920	119 1897	69 1943	4.03 1956	111 1902	67 1887	9.93 1908		
Surat	101 1952	40 1929	1.72 1920	107 1953	42 1929	1.50 1898	111 1945	51 1898	0.32 1954	114 1952	59 1903	3.85 1947	114 1956	67 1888	1.92 1917	114 1901	71 1916	10.24 1922	102 1902	69 1889	18.08 1941		
Ahmedabad	97 1912	38 1954	1.21 1948	105 1953	36 1920	1.04 1917	111 1908	49 1908	0.48 1940	115 1896	55 1955	0.85 1947	118 1916	67 1920	1.82 1917	117 1897	67 1920	5.15 1937	108 1902	70 1908	16.33 1927		
Dohad	93 1949	32 1935	0.47 1953	103 1953	36 1950	0.81 1942	107 1945	49 1945	0.88 1944	110 1933	59 1935	0.60 1946	113 1932	68 1933	4.83 1938	112 1945	70 1948	3.56 1940	101 1939	69 1947	5.73 1952		
Baroda	96 1952	30 1935	0.60 1953	107 1953	35 1950	1.25 1933	110 1949	44 1936	0.41 1954	113 1956	53 1955	0.41 1954	116 1955	66 1939	2.81 1947	114 1945	71 1944	3.70 1934	104 1939	70 1943	7.22 1941		
Baroda (Aero-drome)	96 1952	41 1954	0.55 1953	105 1953	39 1950	0.12 1954	107 1956	56 1956	0.11 1954	111 1956	58 1955	0.11 1955	115 1955	72 1952	1.61 1956	110 1953	73 1953	2.57 1954	101 1949	72 1952	4.39 1956		

X=Highest maximum temperature.

N=Lowest minimum temperature.

R=Heaviest rainfall in 24 hours ending at 0830 hrs. I.S.T.

..=Information not available.

Appendix D

August			September			October			November			December			Based on data since		
X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	Temp.	R. fall	
95 1954	72 1953	6.67 1952	96 1950	70 1950	3.71 1954	96 1951	59 1954	1.61 1951	92 1951	50 1950	0.18 1956	89 1954	46 1955	0.24 1954	1950	1959	Madhya-Pradesh, Raigarh.
92 1954	70 1956	3.89 1951	90 1955	67 1951	3.34 1954	91 1951	49 1954	1.18 1956	85 1951	40 1952	0.26 1956	83 1950	35 1955	0.37 1956	1950	1950	Ambikapur.
95 1954	72 1954	6.75 1953	95 1954	70 1950	3.78 1955	97 1953	60 1954	2.50 1955	92 1946	50 1950	1.62 1946	88 1954	47 1955	0.69 1954	1945	1945	Champur.
98 1883	68 1939	14.58 1910	99 1899	65 1902	5.85 1905	100 1899	57 1933	5.85 1900	96 1935	47 1883	2.77 1930	90 1941	39 1902	2.05 1909	1881	1881	Raipur.
93 1947	68 1939	7.69 1937	92 1951	66 1950	10.13 1936	92 1936	53 1954	4.44 1988	91 1946	45 1939	2.30 1950	88 1948	39 1934	0.70 1940	1931	1931	Kanker.
99 1954	65 1954	7.07 1951	99 1899	65 1904	7.60 1945	100 1899	53 1882	6.46 1986	97 1950	45 1950	2.79 1881	93 1933	39 1883	2.15 1884	1881	1881	Chanda.
97 1950	66 1954	9.74 1953	95 1951	71 1951	2.09 1950	98 1950	58 1954	3.63 1953	92 1951	51 1950	0.07 1956	89 1954	50 1953	0	1950	1950	Sironcha.
93 1922	62 1920	8.00 1931	95 1913	64 1950	6.45 1911	94 1913	52 1941	5.39 1988	92 1946	42 1912	4.05 1924	90 1946	39 1945	1.51 1952	1911	1911	Jagdapur.
95 1950	67 1956	3.75 1950	91 1951	66 1950	4.62 1954	93 1951	60 1954	1.97 1951	89 1953	53 1949	1.50 1948	87 1953	52 1951	0.77 1950	1948	1948	Madhya-Pradesh, W. Buldhana.
100 1950	65 1944	8.84 1900	104 1899	68 1904	9.09 1945	104 1899	50 1889	4.35 1887	97 1899	42 1912	4.42 1956	98 1896	39 1883	2.56 1885	1881	1881	Akola.
98 1902	60 1944	6.62 1944	101 1899	68 1898	9.25 1933	103 1899	55 1889	3.55 1940	96 1899	48 1884	3.07 1911	93 1913	47 1937	2.19 1885	1881	1881	Amravati.
96 1950	67 1955	6.52 1952	94 1951	68 1952	3.99 1955	95 1951	57 1952	3.38 1952	91 1951	50 1950	0.32 1956	89 1952	50 1950	0.54 1950	1949	1949	Yeotmal.
103 1951	67 1943	6.36 1931	105 1899	64 1942	7.68 1882	105 1899	49 1890	5.77 1924	99 1951	43 1949	3.34 1936	94 1896	37 1929	3.77 1886	1881	1881	Khandwa.
96 1950	67 1943	11.58 1919	99 1954	64 1942	8.15 1950	99 1951	54 1952	3.87 1943	95 1951	39 1952	3.40 1912	90 1953	40 1938	4.32 1928	1931	1881	Hoshangab.
96 1899	67 1956	10.80 1908	101 1881	62 1926	6.27 1947	100 1899	58 1890	3.10 1927	94 1909	43 1926	4.14 1902	89 1896	40 1926	2.91 1886	1881	1881	Sagar.
95 1954	65 1929	12.62 1923	95 1941	62 1899	9.91 1926	98 1941	46 1881	4.80 1916	93 1956	39 1889	3.68 1956	91 1941	33 1902	2.68 1885	1881	1881	Jabalpur.
92 1954	70 1952	4.42 1952	93 1951	64 1950	5.83 1955	95 1951	46 1952	4.78 1951	88 1953	38 1950	2.59 1956	86 1953	34 1955	1.12 1950	1950	1950	Mandla.
96 1899	63 1917	11.10 1913	95 1944	61 1942	8.19 1947	97 1899	51 1910	4.90 1916	93 1899	44 1939	4.60 1946	89 1899	38 1936	2.69 1909	1881	1881	Seoni.
92 1950	66 1956	3.99 1955	92 1951	66 1956	5.95 1955	92 1953	51 1952	2.96 1955	88 1953	42 1956	4.75 1956	85 1954	38 1955	0.43 1956	1949	1949	Chhindwa.
90 1950	66 1951	5.03 1953	90 1951	64 1950	4.92 1954	93 1952	47 1952	3.65 1951	90 1948	42 1956	3.57 1956	87 1952	38 1955	0.85 1950	1948	1948	Betul.
100 1899	65 1939	7.90 1895	102 1899	65 1904	7.19 1883	101 1899	58 1952	6.48 1936	96 1899	44 1912	3.21 1946	93 1941	42 1936	1.80 1884	1881	1881	Nagpur.
106 1902	70 1948	12.05 1907	108 1951	63 1912	13.76 1893	109 1925	51 1889	3.65 1917	103 1901	41 1938	1.13 1896	97 1935	35 1903	0.55 1927	1881	1881	GUJARAT Deesa.
99 1932	70 1887	9.01 1933	106 1951	69 1884	15.38 1945	106 1952	58 1893	10.12 1894	103 1951	51 1881	5.84 1946	102 1953	44 1903	1.66 1933	1881	1881	Surat.
102 1911	71 1929	5.93 1906	107 1951	71 1945	10.15 1950	109 1920	58 1955	2.08 1917	102 1901	50 1956	2.10 1947	96 1899	43 1954	0.55 1927	1896	1896	Ahmedaba.
97 1932	70 1956	11.63 1933	102 1951	64 1950	10.45 1945	104 1951	58 1935	6.97 1954	97 1953	48 1938	1.77 1934	94 1953	41 1936	0.29 1931	1931	1931	Dohad.
99 1947	73 1953	9.37 1956	106 1951	66 1938	14.65 1945	107 1951	58 1955	5.45 1940	101 1951	45 1938	1.90 1934	97 1941	38 1937	0.14 1933	1933	1933	Baroda.
96 1949	71 1956	10.91 1956	106 1951	71 1949	2.89 1954	106 1951	56 1954	2.80 1954	100 1951	51 1956	0.01 1956	95 1952	44 1954	0	1949	1949	Baroda (A drome).

X=Highest maximum temperature.

N=Lowest minimum temperature.

R=Heaviest rainfall in 24 hours ending at 0830 hrs. I. S. T.

.. = Information not available.

APPENDIX I

	January			February			March			April			May			June			July		
	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R
Broach	97 1956	42 1954	0.31 1953	109 1953	45 1951	0.10 1954	110 1956	58 1956	0.55 1951	114 1956	61 1955	0.01 1954	118 1955	72 1956	3.17 1956	112 1953	73 1956	4.30 1954	100 1951	73 1954	7.68 1954
AURASHTRA AND KUTCH																					
Bhuj	97 1902	35 1935	0.55 1935	102 1953	34 1929	2.42 1942	111 1892	47 1905	1.18 1915	114 1893	57 1945	2.64 1881	118 1886	62 1916	7.36 1933	115 1901	61 1902	5.11 1910	104 1902	67 1924	13.86 1950
Bhuj (Aero- drome)	89 1956	39 1956	0	99 1955	40 1956	0	104 1956	53 1956	0	108 1954	57 1955	0	114 1955	72 1956	1.15 1.55	107 1954	76 1956	0.86 1956	99 1954	69 1954	2.16 1956
Kandla	84 1956	50 1956	0.18 1954	93 1956	52 1956	0	100 1956	61 1956	0.15 1955	108 1956	65 1955	0	110 1956	73 1955	0	97 1956	77 1956	4.17 1956	90 1956	74 1956	5.08 1956
Mandvi	84 1955	46 1956	0	96 1955	50 1955	0	98 1955	58 1956	0.06 1955	102 1956	59 1956	0	107 1956	72 1955	0	95 1955	77 1956	0.82 1956	91 1955	70 1956	3.68 1956
Dwarka	92 1911	43 1929	0.80 1919	96 1920	47 1901	2.52 1906	101 1955	46 1905	1.67 1911	106 1932	63 1903	0.96 1915	108 1903	68 1909	0.30 1933	100 1951	73 1936	9.09 1956	97 1951	65 1952	0.78 1933
Porbandar	91 1954	49 1953	0.32 1954	102 1955	53 1956	0.25 1954	104 1956	59 1956	0	109 1956	66 1955	0	110 1955	75 1955	0.02 1956	95 1956	75 1953	2.30 1953	91 1954	73 1951	7.44 1956
Jamnagar	93 1933	35 1935	0.78 1929	99 1926	36 1929	1.16 1906	104 1946	47 1905	1.52 1904	109 1901	55 1903	0.76 1915	112 1903	62 1918	3.65 1933	108 1951	63 1917	13.30 1920	102 1902	67 1950	3.19 1929
Rajkot (Aero- drome)	97 1932	31 1935	0.52 1935	104 1953	34 1893	0.84 1888	111 1892	43 1905	0.85 1911	112 1949	50 1903	1.15 1947	118 1919	61 1907	4.62 1917	113 1897	68 1913	8.62 1893	105 1900	67 1941	4.77 1950
Surendranagar	92 1956	45 1954	0	101 1955	48 1954	0	106 1956	58 1956	0	109 1956	57 1955	0	116 1955	73 1956	0.01 1956	110 1955	73 1955	2.41 1955	103 1954	73 1956	3.10 1954
Veraval	94 1933	40 1905	0.5 1926	101 1953	40 1893	0.66 1923	109 1945	49 1892	0.75 1911	109 1954	57 1903	4.91 1947	106 1955	66 1909	4.85 1917	99 1954	68 1951	3.70 1940	93 1902	70 1892	11.40 1945
Mahuva	91 1954	46 1954	0.10 1953	106 1953	51 1956	0	109 1956	57 1956	0.45 1954	113 1954	57 1955	0.06 1956	111 1956	68 1953	0.02 1956	105 1953	73 1955	4.60 1956	56 1955	72 1956	2.55 1953
Bhavnagar	95 1926	33 1929	1.72 1920	103 1953	37 1929	0.65 1909	110 1910	47 1905	1.41 1951	113 1900	55 1903	12.07 1947	116 1912	67 1917	3.44 1934	113 1901	69 1903	8.65 1913	104 1949	71 1910	7.42 1935
Bhavnagar (Aerodrome)	93 1952	43 1954	0.30 1953	100 1953	48 1956	0.08 1956	106 1953	58 1952	0.39 1954	110 1954	58 1955	0	113 1955	73 1952	0.21 1956	110 1953	68 1954	1.15 1955	101 1952	74 1956	2.15 1953
CONKAN																					
Dahanu	94 1952	47 1945	0.33 1948	100 1949	48 1950	0.14 1954	102 1946	55 1945	0	105 1935	67 1931	2.36 1947	101 1944	69 1947	0.62 1956	101 1951	59 1948	12.05 1953	95 1947	70 1947	16.97 1956
Bombay (Cola- ba)	95 1952	53 1935	1.94 1926	101 1949	53 1929	1.64 1917	103 1945	62 1905	1.33 1918	105 1955	68 1905	1.47 1917	97 1944	73 1951	4.97 1893	99 1901	70 1936	16.10 1886	96 1902	71 1915	12.00 1923
Bombay (Sant- aruz Aerodrome)	96 1952	50 1953	0.02 1954	103 1953	50 1950	0.33 1954	107 1956	59 1952	0.03 1951	108 1952	65 1951	0.06 1951	99 1950	69 1951	2.14 1951	98 1951	72 1954	12.03 1953	90 1950	72 1953	12.23 1953
Alibag	93 1954	49 1934	0.38 1938	100 1953	53 1950	0.16 1940	103 1945	60 1945	0.11 1940	104 1955	66 1937	0.33 1947	97 1944	71 1943	4.06 1938	94 1932	65 1945	8.86 1940	89 1951	68 1949	11.65 1953
Harnai	92 1916	60 1945	0.34 1945	92 1954	57 1950	0.04 1948	99 1916	61 1945	0	97 1919	64 1920	1.24 1955	99 1955	68 1950	6.18 1956	94 1953	61 1945	10.03 1951	90 1948	64 1920	9.55 1848
Ratnagiri	98 1912	54 1935	0.92 1888	101 1920	56 1901	1.26 1917	102 1922	61 1910	1.25 1900	97 1938	61 1905	1.02 1937	100 1883	71 1913	3.59 1893	95 1913	67 1939	12.20 1953	91 1900	69 1919	11.98 1900
Devgad	94 1952	60 1945	0.48 1947	95 1952	63 1950	0.02 1954	99 1948	66 1950	0.48 1947	99 1956	69 1953	0.93 1947	95 1954	73 1951	4.70 1949	99 1948	56 1945	6.95 1951	89 1952	70 1954	8.28 1948
Vengurla	96 1955	58 1953	0	102 1952	55 1950	0	98 1954	59 1954	0.01 1954	104 1956	69 1955	0.67 1954	97 1949	73 1956	4.24 1955	93 1953	68 1956	7.81 1956	88 1952	71 1956	9.36 1951
Karwar	97 1954	59 1956	0	97 1954	60 1953	0	97 1954	64 1955	0.66 1954	102 1956	70 1955	1.13 1954	91 1955	73 1956	6.84 1955	90 1954	71 1955	7.85 1953	86 1952	70 1953	6.34 1953
Honawar	97 1946	60 1946	0.16 1948	95 1956	60 1947	0.06 1947	100 1948	66 1950	0.78 1954	95 1956	69 1951	2.44 1956	94 1952	70 1950	9.39 1955	93 1948	70 1954	11.52 1946	90 1949	70 1956	8.95 1953
Deccan (Desh)																					
Khandala	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Jalgaon	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

X=Highest maximum temperature.

N=Lowest minimum temperature.

R=Heaviest rainfall in 24 hours ending at 0830 hrs. I.S.T.

..=Information not available.

APPENDIX I

August			September			October			November			December			Based on data since		
X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	Temp.	R. fall	
56 1954	73 1952	6.10 1956	107 1951	72 1955	12.00 1954	107 1952	58 1954	2.20 1956	102 1951	53 1953	0.03 1956	99 1952	47 1955	0.02 1954	1951	1951	Broach.
101 1948	68 1956	7.85 1917	109 1951	64 1923	6.70 1926	108 1951	52 1949	4.67 1917	100 1901	45 1916	2.10 1836	94 1954	38 1917	1.45 1937	1881	1881	SAURASHTRA AND KUTCH Bhuj.
100 1954	72 1956	2.77 1956	100 1956	67 1954	1.75 1954	100 1955	58 1955	2.20 1956	95 1955	49 1956	0.04 1954	93 1954	40 1955	0.14 1956	1954	1954	Bhuj (A drome).
92 1956	74 1956	7.32 1956	99 1956	74 1956	2.55 1953	100 1955	66 1955	0.45 1956	95 1955	59 1956	0.11 1951	88 1955	49 1955	0	1955	1951	Kandla.
89 1955	73 1956	6.90 1956	96 1955	73 1956	2.03 1955	101 1955	65 1955	1.29 1956	91 1956	57 1956	0	86 1955	47 1955	0.07 1955	1954	1954	Mandvi.
91 1954	71 1908	11.90 1933	103 1929	72 1909	5.35 1921	104 1951	62 1949	5.45 1917	99 1901	54 1938	13.98 1951	93 1932	47 1903	1.12 1937	1901	1901	Dwarka.
91 1954	73 1956	3.53 1954	97 1955	73 1954	3.73 1956	103 1953	63 1952	1.29 1956	98 1953	56 1952	0	98 1953	50 1954	0.18 1954	1952	1952	Porbander
100 1954	69 1924	9.80 1954	107 1951	61 1923	5.25 1947	105 1952	58 1954	1.47 1915	99 1901	48 1938	1.91 1948	94 1955	39 1930	1.68 1929	1901	1901	Jamnagar
100 1947	69 1913	9.18 1900	105 1911	62 1912	7.27 1945	107 1925	54 1949	2.76 1917	101 1929	45 1917	3.93 1888	97 1886	27 1903	0.90 1929	1881	1881	Rajkot (A drome)
98 1955	71 1956	7.80 1953	97 1955	72 1956	3.16 1956	101 1953	61 1954	0.60 1956	99 1953	52 1956	0	94 1953	41 1955	0	1953	1953	Jurendran
92 1932	73 1956	10.63 1933	98 1955	69 1946	10.92 1926	104 1952	56 1949	6.84 1917	100 1951	50 1950	3.54 1896	96 1953	45 1950	1.01 1902	1891	1891	Veraval.
94 1354	70 1952	2.11 1955	96 1952	69 1954	3.15 1954	102 1952	60 1954	2.80 1956	97 1953	56 1953	0.21 1956	95 1952	49 1954	0.68 1954	1952	1952	Mahuva.
102 1902	71 1903	4.92 19.6	106 1951	69 1935	9.54 1547	106 1951	56 1916	9.21 1931	101 1918	49 1938	4.16 1936	95 1941	41 1908	102 1909	1891	1891	Bhavnagar
97 1952	73 1956	3.79 1956	105 1951	70 1952	4.05 1954	107 1951	63 1954	5.06 1956	98 1951	54 1956	0	92 1952	49 1955	0.02 1954	1951	1951	Bhavnagar rodrom
89 1947	69 1951	13.19 1945	93 1944	70 1954	8.88 1956	97 1953	63 1954	3.68 1951	98 1917	60 1955	10.10 1948	96 1952	52 1945	0.02 1954	1944	1944	Konkan Dahanu.
90 1948	71 1913	11.33 1881	95 1929	68 1947	21.58 1930	97 1944	69 1954	5.85 1917	97 1946	64 1881	4.83 1927	95 1952	55 1929	0.96 1884	1881	1881	Bombay (A drome)
88 1954	67 1950	10.08 1954	96 1951	71 1953	5.23 1954	96 1953	62 1952	4.61 1955	97 1951	56 1950	0.72 1951	95 1952	51 1919	0.36 1954	1919	1919	Bombay (A drome)
91 1932	70 1949	8.03 1954	91 1951	70 1947	15.60 1949	99 1936	65 1954	4.56 1938	98 1941	60 1950	4.20 1918	94 1941	57 1949	0.49 1933	1931	1931	Alibag.
90 1947	69 1950	6.93 1947	89 1951	70 1947	12.15 1949	95 1950	67 1916	6.95 1947	96 1951	65 1916	2.86 1916	93 1944	66 1949	0.60 1954	1944	1944	Harnai.
88 1939	70 1931	8.04 1885	94 1896	69 1898	9.82 1938	99 1888	64 1903	8.70 1938	99 1918	60 1955	9.60 1912	97 1896	58 1954	1.33 1931	1881	1881	Ratnagir
89 1948	67 1945	5.15 1948	90 1953	70 1945	9.26 1948	95 1946	67 1952	5.55 1951	97 1951	63 1952	2.64 1916	94 1953	61 1949	0.65 1954	1945	1945	Devgad.
87 1950	71 1956	6.92 1950	91 1952	71 1952	4.91 1955	96 1953	64 1950	4.82 1951	96 1951	58 1950	1.00 1956	95 1955	51 1954	0.05 1954	1949	1949	Vengurla
85 1954	71 1955	5.38 1955	87 1955	70 1954	4.68 1955	90 1955	65 1952	6.90 1954	95 1953	60 1952	2.82 1955	93 1955	58 1956	0.23 1952	1952	1952	Karwar.
89 1947	67 1955	5.44 1955	90 1951	60 1950	5.02 1954	95 1948	65 1950	3.90 1952	96 1948	60 1950	2.48 1946	99 1949	61 1945	0.99 1947	1945	1945	Honawar
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Decan (D Khanda)
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Jalgaon.

X=Highest maximum temperature.

N=Lowest minimum temperature.

R=Heaviest rainfall in 24 hours ending at 0830 hrs. I.S.T.

..=Information not available.

APPENDIX I

	January			February			March			April			May			June			July		
	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R
Malegaon	95 1932	93 1935	1.50 1888	103 1953	91 1929	1.71 1936	114 1889	42 1898	0.58 1915	112 1925	49 1905	0.80 1945	116 1916	62 1881	4.11 1903	112 1915	61 1932	4.37 1914	100 1920	65 1953	6.24 1896
Deolali	91 1950	41 1954	0.05 1955	100 1953	91 1950	0.06 1954	104 1953	48 1955	0.29 1955	108 1956	52 1955	0.54 1951	108 1955	64 1955	2.27 1951	104 1955	68 1952	1.80 1953	91 1951	68 1951	6.18 1952
Ahmednagar	97 1897	96 1945	2.03 1941	102 1897	97 1911	1.69 1894	105 1934	46 1892	3.48 1938	109 1949	51 1926	2.83 1937	110 1919	61 1917	4.72 1915	110 1920	65 1907	6.98 1931	99 1955	64 1944	6.85 1911
Poona	95 1938	35 1935	0.88 1948	102 1953	39 1934	0.64 1892	109 1892	45 1908	1.38 1954	110 1897	51 1903	2.01 1896	110 1889	57 1888	3.25 1927	107 1897	63 1920	3.82 1936	96 1915	66 1920	4.50 1935
Poona (Lo- hagaon Ae- rodrome).	91 1952	47 1954	0 ..	100 1953	48 1956	0 ..	104 1953	52 1955	1.69 1954	107 1956	54 1955	0.56 1955	107 1952	59 1955	1.33 1951	103 1953	66 1953	3.30 1954	91 1952	68 1956	3.09 1956
Baramati	92 1955	49 1955	0 ..	97 1956	49 1956	0 ..	104 1956	55 1955	0.15 1955	108 1956	56 1955	0.89 1955	109 1954	67 1956	1.14 1956	104 1954	68 1956	2.77 1955	92 1955	68 1956	1.46 1956
Jeur	93 1950	44 1954	0.02 1955	101 1953	41 1950	0.73 1952	106 1953	53 1952	0.13 1955	108 1956	59 1955	0.65 1953	109 1954	69 1955	1.93 1956	110 1953	66 1951	3.21 1953	97 1952	66 1956	3.47 1956
Sholapur	98 1897	40 1945	1.92 1943	103 1886	43 1911	1.35 1928	111 1892	54 1886	1.56 1893	112 1889	57 1905	1.89 1907	114 1939	61 1885	2.21 1952	112 1953	63 1922	5.66 1882	102 1912	65 1914	6.31 1907
Miraj	93 1950	41 1945	1.83 1941	99 1953	44 1944	0.34 1941	105 1949	53 1940	0.52 1938	108 1942	59 1944	4.53 1937	108 1940	66 1937	4.26 1938	108 1934	67 1956	2.55 1955	95 1932	63 1945	2.40 1943
Kolhapur	92 1952	48 1946	0.58 1947	98 1953	51 1949	0.17 1952	104 1953	57 1952	1.91 1948	107 1956	60 1955	1.36 1946	105 1953	65 1946	2.60 1947	103 1953	66 1956	3.74 1955	89 1952	66 1955	5.97 1953
Bijapur	103 1948	45 1945	3.51 1922	106 1943	48 1930	0.93 1928	106 1910	56 1910	1.57 1938	108 1931	61 1905	2.60 1933	109 1951	64 1940	3.55 1956	108 1923	63 1903	0.95 1901	98 1901	61 1902	4.02 1953
Belgaum	92 1929	45 1946	1.90 1906	99 1892	44 1901	0.98 1956	103 1892	51 1944	1.57 1887	103 1936	55 1955	2.70 1892	105 1892	60 1917	5.10 1955	99 1953	61 1912	5.41 1939	89 1902	63 1912	7.59 1943
Belgaum (C.T.O.)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Belgaum (Sambre Ae- rodrome).	91 1956	51 1956	0 ..	95 1953	51 1954	0.61 1956	101 1953	58 1956	0.54 1954	104 1956	58 1955	1.19 1954	103 1953	63 1955	2.51 1955	101 1953	65 1956	3.71 1955	86 1953	65 1956	2.65 1954
Gadag	94 1938	52 1951	0.83 1935	99 1948	52 1950	0.66 1937	104 1953	59 1940	2.43 1948	106 1911	63 1935	1.48 1956	107 1939	66 1952	3.22 1943	105 1953	67 1956	2.71 1944	94 1951	66 1934	2.14 1932
Hyderabad, No- rth																					
Aurangabad	99 1924	39 1945	2.03 1920	100 1953	36 1911	1.43 1894	108 1892	48 1898	0.92 1915	113 1896	50 1908	0.97 1937	114 1905	63 1924	2.10 1918	111 1923	63 1901	7.17 1953	100 1897	63 1904	5.50 1916
Aurangabad (Chikalhana Ae- ro).	90 1955	39 1954	0.13 1955	99 1954	44 1952	0.12 1952	104 1955	51 1952	0.80 1954	107 1953	61 1956	0.31 1954	108 954	68 1952	1.18 1956	108 1953	68 1954	3.71 1955	95 1952	68 1956	3.31 1953
Parbhani	92 1955	40 1945	1.71 1926	101 1953	43 1949	1.37 1928	107 1953	56 1952	1.83 1927	111 1949	63 1955	1.45 1939	114 1954	70 1956	2.23 1916	114 1953	68 1951	3.46 1940	100 1950	69 1951	6.75 1923
Ramagundam	93 1952	49 1953	0.43 1953	102 1951	49 1949	0.20 1952	109 1953	58 1952	0.83 1951	112 1956	63 1956	1.20 1956	117 1948	70 1949	1.95 1949	117 1953	71 1955	5.54 1953	104 1950	70 1950	4.72 1956
Nizamabad	96 1928	41 1899	2.35 1943	101 1954	43 1911	2.85 1928	110 1928	52 1892	1.73 1950	112 1942	55 1905	3.00 1937	117 1923	65 1917	2.80 1922	115 1931	62 1902	9.70 1914	104 1904	58 1931	6.20 1898
Bidar	93 1925	39 1901	2.02 1906	99 1926	49 1950	1.15 1928	107 1910	55 1925	1.43 1938	108 1346	54 1918	4.35 1907	110 1931	44 1918	3.42 1943	109 1953	50 1918	7.28 1943	97 1924	52 1900	9.68 1955
Hyderabad South																					
Gulbarga	97 1897	44 1937	1.67 1922	101 1903	52 1911	2.25 1929	109 1892	55 1910	2.86 1938	111 1923	56 1902	3.12 1907	113 1912	65 1892	4.91 1952	113 1923	55 1910	5.70 1928	99 1920	63 1920	4.27 1897
Raichur	96 1897	50 1899	1.96 1926	101 1897	55 1929	1.94 1923	109 1892	62 1936	0.94 1955	110 1927	61 1936	3.77 1901	114 1928	65 1927	3.46 1952	110 1898	61 1896	4.65 1901	101 1915	64 1899	3.43 1907
Mahbubnagar	90 1956	55 1956	0 ..	97 1954	53 1956	0 ..	104 1953	60 1952	0.10 1954	108 1956	70 1956	1.07 1953	110 1956	70 1955	3.12 1952	110 1953	69 1955	2.35 1954	96 1952	67 1952	4.11 1956
Hyderabad (Begumpet Ae- ro.)	95 1929	43 1946	3.67 1922	99 1951	48 1911	1.69 1912	108 1892	56 1952	4.06 1928	110 1941	61 1917	2.39 1937	112 1935	67 1917	2.56 1905	111 1931	61 1922	4.83 1914	99 1918	67 1931	4.31 1916

X=Highest maximum temperature.

N=Lowest minimum temperature.

R=Heaviest rainfall in 24 hours ending at 0830 hrs. I.S.T.

..=Information not available.

APPENDIX I

August			September			October			November			December			Based on data since		
X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	Temp.	R. fall	
99 1899	61 1899	4.54 1897	101 1899	61 1942	5.20 1834	104 1839	51 1933	4.32 1935	98 1908	42 1910	4.14 1912	95 1896	38 1929	1.55 1884	1881	1881	Malegaon
92 1950	67 1956	5.64 1956	92 1955	64 1954	3.42 1954	94 1952	49 1954	2.15 1956	91 1953	44 1955	0.94 1956	91 1953	41 1954	0.55 1954	1950	1950	Deolali.
98 1899	61 1913	4.53 1928	98 1912	58 1896	5.86 1902	99 1899	51 1914	3.51 1943	96 1898	42 1892	4.91 1948	92 1953	38 1926	2.72 1942	1891	1891	Ahmedna
95 1950	63 1920	4.28 1956	97 1951	61 1901	5.21 1938	100 1899	52 1910	5.87 1892	97 1896	45 1939	3.81 1934	95 1896	40 1940	1.62 1942	1881	1881	Poona.
88 1954	63 1956	4.08 1956	99 1951	60 1952	2.17 1955	97 1951	55 1950	4.21 1951	92 1953	49 1955	3.00 1951	92 1954	46 1954	0.32 1954	1950	1950	Poona hagaon rodrome)
90 1954	64 1956	4.18 1956	96 1955	65 1956	2.16 1956	93 1954	55 1954	2.43 1955	91 1955	49 1955	1.82 1956	90 1954	47 1956	0.55 1954	1954	1954	Baramati
99 1950	64 1956	2.08 1956	97 1951	63 1956	2.67 1954	97 1951	54 1952	2.21 1956	93 1951	48 1955	1.17 1956	91 1952	44 1956	1.70 1954	1950	1950	Jeur.
100 1899	59 1956	7.52 140	99 1899	65 1946	6.69 1895	101 1836	55 1882	4.86 1893	97 1915	46 1881	5.03 1896	94 1896	44 1945	3.84 1886	1881	1881	Sholapur
94 1941	61 1949	5.41 1932	96 1951	60 1935	3.69 1946	97 1942	54 1937	3.99 1956	93 1952	47 1950	4.49 1955	94 1941	45 1954	0.78 1933	1931	1931	Miraj.
90 1950	66 1956	4.58 1956	95 1951	64 1952	2.93 1956	93 1946	57 1952	2.66 1953	92 1951	52 1955	3.51 1955	90 1954	48 1956	0.69 1947	1946	1946	Kolhapu
96 1902	62 1906	4.77 1954	98 1896	61 1901	5.66 1949	99 1896	54 1897	3.62 1939	95 1896	47 1904	4.45 1922	92 1936	44 1897	1.36 1942	1896	1896	Pijapur.
89 1932	61 1890	11.00 1914	93 1886	59 1902	4.20 1937	92 1896	54 1906	3.54 1889	91 1918	49 1955	3.98 1917	89 1941	48 1951	6.50 1902	1881	1881	Belgaum
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Belgaum (C.T.O)
84 1954	60 1956	3.40 1956	87 1955	62 1956	1.07 1955	88 1954	57 1954	2.87 1953	86 1955	51 1955	1.93 1956	88 1952	46 1954	0.08 1954	1952	1952	Belgaum (Sambu rodrom)
94 1948	66 1956	2.77 1939	100 1951	63 1952	3.74 1931	94 1948	60 1950	6.75 1947	99 1947	54 1939	3.23 1956	91 1953	53 1948	2.22 1933	1931	1931	Gadag.
97 1950	63 1935	5.30 1903	98 1896	61 1901	9.65 1891	100 1911	54 1933	2.71 1901	96 1896	45 1910	6.20 1946	94 1896	41 1902	3.65 1942	1896	1891	Hydera North. Aurang
92 1954	65 1956	2.73 1956	92 1956	64 1952	3.06 1954	94 1953	47 1952	1.25 1955	92 1953	42 1956	0.78 1956	91 1953	33 1954	0.36 1954	1952	1952	Aurang (Chik; na Aer)
98 1950	68 1953	5.50 1931	96 1951	66 1950	8.55 1923	98 1946	50 1954	6.65 1955	93 1953	47 1956	3.11 1936	91 1953	44 1945	1.27 1937	1944	1916	Parbha
98 1949	71 1956	3.52 1953	97 1955	71 1951	2.91 1947	97 1951	60 1954	3.33 1947	95 1949	52 1952	2.57 1949	93 1956	1951 1952	0.12 1952	1947	1947	Ramagu
100 1899	63 1901	6.21 1944	99 1920	63 1903	9.90 1929	102 1951	53 1921	7.75 1939	96 1926	45 1929	3.15 1936	95 1920	40 1897	1.96 1918	1891	1891	Nizamal
97 1924	49 1900	5.68 1947	98 1924	48 1918	8.00 1949	98 1901	47 1900	5.05 1903	97 1918	43 1900	5.45 1896	91 1923	37 1918	3.22 1906	1896	1896	Bidar.
110 1889	65 1920	3.95 1910	99 1926	64 1954	5.80 1928	100 1899	50 1905	5.80 1893	96 1940	46 1945	2.55 1948	94 1920	42 1945	2.62 1906	1891	1891	Hydera South. Gulbar
100 1915	63 1908	4.24 1914	101 1897	67 1948	5.15 1949	99 1920	60 1943	6.25 1916	95 1920	53 1924	3.45 1919	97 1899	50 1945	2.05 1903	1891	1896	Raichu
94 1913	68 1956	2.21 1955	94 1952	67 1954	3.11 1955	91 1953	61 1952	2.70 1952	90 1956	55 1955	0.83 1955	89 1953	54 1956	0.05 1956	1952	1952	Mahbu
97 1950	67 1950	7.50 1954	97 1927	64 1942	6.03 1908	98 1896	56 1954	4.61 1903	93 1909	46 1939	3.76 1927	92 1930	45 1945	1.75 1918	1891	1896	Hyder (Begur Aero)

X=Highest maximum temperature.

N=Lowest minimum temperature.

R=Heaviest rainfall in 24 hours ending at 0830 hrs. I.S.T.

..=Information not available.

APPENDIX I

	January			February			March			April			May			June			July		
	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R
Hakimpet . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hanamkonda	95 1921	48 1945	2.30 1924	100 1954	51 1911	1.80 1936	108 1953	59 1906	2.80 1928	112 1942	65 1945	3.29 1937	116 1928	63 1917	2.98 1940	115 1953	70 1953	7.78 1914	102 1920	64 1911	8.97 1903
Bhadrachallam	92 1956	52 1955	0.10 1953	101 1954	53 1956	0.08 1952	109 1953	60 1952	1.00 1954	111 1956	65 1956	1.18 1956	116 1956	71 1955	1.40 1956	115 1953	69 1954	3.10 1956	103 1952	71 1954	2.91 1956
Khammamctth	95 1950	49 1946	0.10 1953	102 1954	56 1946	1.56 1946	110 1953	61 1952	0.54 1954	112 1956	66 1945	2.48 1945	117 1947	70 1948	1.83 1948	116 1953	71 1950	3.65 1953	103 1952	70 1948	11.80 1954
Postal Andhra- Nellore	96 1936	59 1946	3.71 1906	103 1927	61 1891	4.60 1928	111 1892	63 1910	2.33 1944	114 1895	69 1934	2.90 1900	116 1892	71 1947	7.32 1952	116 1894	70 1912	3.30 1903	114 1951	72 1943	3.75 1950
Ongole . . .	93 1946	58 1946	1.10 1953	101 1954	58 1945	0.21 1948	110 1953	65 1945	2.06 1951	112 1956	69 1950	0.66 1956	115 1956	61 1949	4.04 1949	115 1953	74 1956	2.80 1946	104 1952	71 1952	3.16 1956
Gannavaram	94 1952	60 1955	0.33 1956	100 1954	61 1956	0.40 1952	110 1953	63 1952	1.50 1950	112 1956	73 1956	3.05 1953	116 1956	70 1955	1.71 1955	116 1953	69 1951	3.67 1956	103 1952	71 1953	3.92 1956
Masulipatam	92 1946	57 1945	3.00 1908	99 1927	58 1889	3.80 1901	108 1892	62 1906	5.92 1926	112 1892	65 1926	3.99 1942	118 1906	67 1893	3.25 1904	115 1924	68 1947	5.25 1915	107 1897	67 1893	4.55 1935
Kakinada . . .	91 1950	58 1946	3.08 1921	100 1896	60 1918	1.77 1893	102 1934	63 1906	2.82 1905	109 1947	66 1942	2.40 1937	116 1934	70 1917	4.32 1914	117 1923	71 1940	1974 1941	107 1897	70 1938	5.00 1947
Nidadavolu . .	91 1956	58 1956	0 ..	96 1956	59 1956	0.23 1956	99 1956	68 1956	0 ..	109 1956	74 1956	0.86 1956	116 1956	73 1956	1.81 1956	105 1956	74 1956	2.36 1956	91 1956	73 1956	2.12 1956
Tisakhapatnam	90 1900	55 1956	5.20 1908	98 1922	56 1956	2.54 1901	101 1956	58 1952	2.54 1926	101 1947	65 1930	2.91 1925	110 1953	68 1904	5.72 1955	111 1906	70 1953	6.54 1929	101 1899	71 1904	5.71 1951
Palingapatnam	93 1911	54 1937	1.00 1908	1.00 1922	55 1918	3.27 1923	102 1946	61 1952	3.32 1940	107 1947	65 1930	2.50 1956	111 1916	69 1951	12.10 1914	111 1923	72 1949	7.41 1935	102 1911	71 1919	8.10 1956
Rentachintala	95 1953	51 1946	0.15 1918	103 1954	55 1949	0.84 1956	112 1953	60 1952	1.12 1950	115 1941	65 1937	2.72 1948	117 1948	65 1955	2.65 1940	117 1953	71 1947	4.00 1947	105 1952	71 1956	3.45 1953
Talayaseema Arogyavaram	86 1953	53 1956	0.76 1947	93 1954	53 1947	0.89 1950	99 1953	55 1955	0.52 1952	101 1956	65 1956	1.97 1956	102 1947	60 1956	3.17 1951	99 1953	68 1956	2.55 1951	94 1956	62 1952	3.94 1954
Cuddapah . . .	100 1897	53 1912	3.34 1896	105 1897	58 1948	2.03 1901	110 1903	64 1935	5.17 1915	113 1906	64 1907	4.59 1898	115 1906	67 1896	4.53 1940	113 1923	64 1944	4.16 1906	105 1897	63 1943	4.09 1894
Kurnool . . .	97 1897	47 1891	1.62 1915	102 1899	52 1943	2.63 1928	107 1925	55 1921	1.97 1893	112 1896	61 1905	1.34 1951	114 1921	67 1955	6.52 1952	112 1898	68 1935	3.20 1901	101 1915	69 1903	5.20 1893
Anantpur . . .	92 1956	54 1949	0.20 1947	99 1948	56 1947	0.43 1947	105 1953	59 1951	1.02 1951	108 1956	65 1950	2.64 1956	108 1953	66 1951	3.01 1955	107 1953	69 1953	1.90 1955	98 1952	70 1956	1.70 1953
TAMILNAD																					
Palayamcottai	92 1953	68 1956	2.15 1951	97 1954	68 1956	2.09 1950	107 1953	70 1956	3.28 1954	107 1956	72 1955	2.95 1947	108 1953	73 1956	1.85 1949	108 1953	71 1955	0.37 1956	101 1954	74 1953	1.35 1949
Tuticorin . . .	92 1955	66 1956	0.85 1956	86 1955	65 1956	0 ..	91 1955	70 1956	1.77 1955	101 1956	72 1955	1.38 1955	106 1956	71 1955	1.31 1955	101 1956	71 1956	0.45 1956	99 1954	74 1954	0.83 1954
Pamban . . .	92 1902	68 1956	5.02 1902	92 1906	67 1939	3.50 1902	95 1953	69 1899	2.48 1938	99 1930	69 1949	3.20 1954	98 1923	70 1891	4.04 1930	99 1913	69 1897	2.19 1940	95 1921	72 1928	5.15 1916
Mathurai . . .	94 1936	60 1907	6.00 1921	101 1906	61 1884	7.40 1929	107 1882	63 1909	3.95 1947	107 1935	67 1909	6.55 1891	107 1956	64 1920	3.92 1882	108 1935	64 1987	4.15 1927	105 1884	67 1891	4.90 1893
Nagapattinam	89 1899	61 1912	9.65 1923	96 1898	60 1884	4.92 1938	104 1953	62 1894	4.98 1923	107 1908	68 1894	5.97 1931	109 1898	69 1901	6.46 1930	107 1884	69 1882	3.12 1935	107 1898	71 1936	4.45 1916
Tiruchirappalli	96 1925	58 1884	4.52 1909	104 1906	57 1884	5.43 1891	108 1892	60 1896	3.18 1906	109 1896	65 1937	6.32 1889	110 1896	67 1955	7.21 1930	111 1888	68 1911	2.89 1894	106 1921	71 1951	3.73 1916
Coimbatore . .	95 1887	53 1912	5.57 1900	98 1899	55 1910	2.55 1922	102 1900	60 1930	3.30 1915	104 1906	64 1899	2.16 1954	103 1952	65 1893	3.37 1930	101 1895	65 1893	5.22 1941	96 1898	62 1911	4.08 1924
Coimbatore (Peelamedu Aero.)	91 1953	54 1949	0.56 1954	96 1954	58 1953	1.93 1950	101 1955	60 1949	0.67 1951	102 1956	65 1949	2.30 1955	103 1952	60 1949	2.11 1953	95 1953	65 1949	0.92 1956	92 1952	61 1949	1.54 1949
Salem . . .	99 1925	55 1907	2.59 1943	103 1926	52 1907	2.59 1893	107 1892	38 1934	3.18 1884	109 1908	65 1887	3.76 1929	109 1931	65 1893	4.8 1930	107 1912	68 1885	4.55 1902	105 1923	66 1887	4.94 1952
Kallakurichi	90 1956	59 1950	1.17 1956	99 1950	60 1950	2.08 1950	107 1953	63 1951	2.02 1950	107 1956	69 1950	0.83 1955	109 1956	69 1955	3.51 1955	105 1954	71 1956	2.61 1956	104 1952	71 1951	4.28 1955

X = Highest maximum temperature.

N = Lowest minimum temperature.

R = Heaviest rainfall in 24 hours ending at 0830 hrs. I.S.T.

.. = Information not available.

APPENDIX I

August			September			October			November			December			Based on data since		
X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	Temp	R. fal	
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Hakimpet
99	67	7.50	101	67	12.00	100	59	4.76	94	49	3.65	93	47	1.67	1901	1901	Hanamko
1920	1905	1924	1920	1904	1908	1920	1952	1931	1920	1904	1916	1920	1902	1929			
96	70	8.30	96	72	2.31	93	60	2.70	92	54	1.75	90	50	1.59	1952	1952	Bhadrach lam.
1952	1952	1955	1956	1956	1952	1952	1952	1953	1952	1953	1956	1956	1956	1952			
97	70	4.22	98	72	6.00	98	62	2.61	93	55	3.40	92	50	0.70	1945	1945	Khamman
1950	1947	1950	1952	1956	1947	1946	1952	1958	1951	1950	1946	1951	1945	1947			
105	71	2.96	106	71	5.26	103	66	17.48	98	62	14.05	95	58	7.45	1891	1891	Costal. A dhradess Nellore.
1899	1912	1923	1899	1945	1909	1900	1895	1950	1915	1939	1936	1909	1895	1902			
101	71	2.60	102	71	9.16	100	65	7.28	95	62	10.17	93	61	3.44	1945	1945	Ongole.
1950	1956	1949	1952	1949	1949	1951	1947	1958	1952	1955	1946	1951	1948	1952			
98	72	3.30	98	72	5.64	97	65	5.28	95	62	1.81	93	59	0.42	1951	1950	Gannayara
1952	1954	1955	1952	1954	1954	1951	1952	1956	1951	1955	1956	1951	1953	1952			
101	71	5.34	100	69	4.59	99	66	19.78	94	57	14.00	90	58	6.27	1881	1881	Masulipat
1920	1952	1886	1888	1895	1954	1888	1895	1949	1891	1931	1938	1951	1987	1947			
100	71	5.75	99	71	11.25	99	63	11.10	93	60	10.88	90	57	5.13	1896	1881	Kakinada.
1902	1955	1937	1920	1955	1956	1907	1949	1936	1951	1910	1923	1899	1802	1882			
93	74	1.61	93	72	1.61	93	70	5.76	91	60	0.90	89	56	0	1955	1955	Niladaval
1956	1956	1956	1956	1956	1956	1955	1955	1955	1956	1955	1956	1956	1956	1956			
100	70	4.19	100	72	5.85	97	64	10.27	93	59	10.65	91	55	7.53	1896	1901	Vi-akhapat
1941	1907	1922	1939	1953	1914	1952	1952	1928	1942	1929	1923	1951	1955	1909			
98	72	7.58	98	72	12.23	96	62	6.12	93	56	11.04	89	54	8.73	1911	1906	Calingapat nam.
1923	1912	1912	1920	1930	1911	1950	1952	1921	1914	1926	1923	1951	1937	1909			
103	71	3.63	101	72	6.10	100	62	6.03	97	54	2.82	94	50	2.10	1936	1936	Rentachin
1950	1952	1944	1946	1953	1954	1951	1950	1945	1951	1950	1956	1951	1936	1952			Rayalseen
93	67	2.24	93	61	3.49	91	59	6.21	88	54	2.04	85	53	2.85	1945	1945	Arcgyava
1951	1954	1951	1952	1949	1956	1948	1947	1954	1947	1950	1946	1951	1951	1946			
104	67	6.93	103	67	6.83	102	62	5.30	97	57	4.12	96	53	3.35	1891	1881	Cuddapah
1899	1921	1910	1907	1920	1906	1922	1943	1921	1927	1930	1943	1930	1945	1883			
100	69	4.80	100	67	7.88	101	57	5.76	97	50	3.17	94	44	2.80	1891	1886	Kurnool.
1899	1929	1955	1899	1892	1888	1898	1950	1916	1896	1950	1903	1929	1932	1906			
98	71	3.05	97	67	3.96	95	60	3.09	94	55	3.91	90	54	0.89	1946	1946	Anantapur
1949	1956	1949	1952	1954	1953	1950	1050	1946	1051	1050	1948	1951	1951	1952			
102	74	1.55	104	73	1.60	101	71	2.54	97	70	3.68	96	68	3.50	1950	1945	TAMILNAD Palayamco tai
1953	1954	1956	1952	1954	1946	1955	1956	1948	1953	1955	1953	1952	1956	1946			
99	75	0.58	99	75	0.48	98	72	1.58	94	69	5.30	89	67	7.41	1954	1954	Tuticorin
1954	1956	1956	1956	1955	1955	1955	1956	1956	1955	1954	1956	1955	1955	1955			
94	72	2.91	95	69	4.27	95	70	5.26	92	71	5.42	93	66	8.61	1891	1891	Pamban
1945	1954	1937	1940	1930	1901	1940	1891	1932	1944	1956	1896	1906	1953	1955			
104	69	4.42	103	68	6.07	101	66	5.07	97	63	6.68	95	62	6.52	1881	1881	Mathurai
1891	1912	1910	1928	1908	1946	1934	1911	1909	1948	1909	1921	1951	1920	1955			
105	69	4.95	100	69	3.10	99	69	15.60	95	62	14.39	93	62	14.44	1881	1881	Nagapatti
1898	1913	1900	1907	1897	1921	1908	1891	1930	1948	1951	1918	1909	1886	1931			
105	69	4.33	105	69	3.32	102	66	12.56	98	62	11.74	96	58	5.34	1881	1881	Tiruchirap
1888	1935	1944	1929	1908	1897	1906	1891	1930	1923	1884	1939	1926	1883	1931			
96	63	2.94	96	64	2.98	97	59	4.23	94	57	3.97	95	54	4.32	1881	1881	Coimbatore
1889	1921	1916	1914	1954	1912	1918	1911	1891	1892	1901	1940	1899	1883	1930			
92	61	2.05	96	62	4.60	95	61	1.87	91	58	2.22	90	55	1.48	1948	1948	Coimbatore (Peelame aerodrom Salem)
1953	1949	1950	1955	1948	1950	1949	1948	1949	1952	1954	1950	1950	1951	1954			
102	67	6.94	102	66	9.85	100	60	6.52	96	55	4.80	96	55	5.17	1881	1881	
1885	1909	1939	1891	1887	1885	1918	1911	1916	1948	1901	1882	1926	1945	1884			
101	70	2.91	100	68	3.29	99	66	4.45	98	61	4.93	92	61	3.28	1948	1948	Kallakuri
1951	1956	1951	1952	1956	1956	1951	1950	1956	1948	1954	1946	1950	1954	1952			

X=Highest maximum temperature.

N=Lowest minimum temperature.

R=Heaviest rainfall in 24 hours ending at 0830 hrs. I.S.T.

..=Information not available.

APPENDIX I

	January			February			March			April			May			June			July		
	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R
Cuddalore	89 1951	56 1894	5.13 1920	97 1898	58 1918	4.70 1930	102 1953	61 1898	7.21 1933	108 1908	67 1939	4.74 1939	110 1953	70 1950	22.52 1943	109 1905	70 1898	3.25 1921	105 1895	66 1911	3.97 1949
Vellore	93 1936	53 1946	2.72 1922	100 1945	55 1922	2.65 1906	105 1953	58 1934	.96 1915	111 1908	64 1950	3.27 1951	112 1906	67 1902	8.44 1943	109 1935	69 1922	3.71 1938	105 1902	69 1910	4.93 1910
Madras	91 1894	57 1905	8.38 1915	98 1927	59 1934	4.85 1929	105 1953	62 1908	2.54 1925	109 1908	68 1939	3.79 1945	113 1910	70 1886	8.46 1913	110 1918	69 1909	2.33 1931	106 1915	71 1947	4.58 1910
Madras (Nungambakkam)	87 1953	61 1950	2.47 1955	95 1950	62 1951	1.10 1955	104 1953	65 1954	0.11 1950	106 1956	70 1950	3.95 1951	108 1953	70 1952	9.62 1952	108 1953	73 1956	1.21 1956	103 1951	72 1954	2.69 1954
Malabar and South Kanara Mangalore	96 1955	62 1911	1.60 1943	100 1920	62 1911	1.42 1917	99 1955	65 1911	3.26 1946	96 1921	68 1954	4.61 1939	98 1921	66 1911	14.21 1909	94 1923	68 1920	9.92 1897	89 1954	69 1931	10.56 1900
Kozikode	96 1952	63 1913	4.11 1909	96 1952	61 1925	5.91 1945	95 1954	67 1896	3.28 1936	96 1952	70 1938	5.61 1899	99 1920	68 1937	10.57 1932	93 1948	69 1956	9.85 1941	90 1931	70 1956	10.40 1922
Palghat	97 1953	60 1946	1.24 1948	102 1954	66 1954	1.17 1952	105 1956	69 1951	3.10 1948	107 1950	71 1956	3.56 1954	103 1952	69 1955	4.79 1955	96 1948	69 1956	3.90 1955	90 1945	69 1956	4.24 1949
Mysore Bellary	98 1897	51 1891	1.82 1881	103 1897	54 1891	2.36 1917	109 1892	58 1885	1.05 1930	111 1909	61 1905	3.03 1956	111 1897	65 1890	6.39 1940	108 1915	66 1956	3.36 1915	101 1915	67 1930	4.05 1953
Chitaldrug	93 1900	52 1918	4.10 1918	97 1931	56 1947	3.50 1944	102 1925	61 1955	0.70 1915	103 1911	63 1904	4.16 1956	107 1931	62 1951	7.15 1955	100 1935	63 1906	4.66 1897	94 1932	69 1943	4.52 1910
Shimoga	92 1952	50 1953	0.04 1953	99 1953	51 1953	0.09 1956	102 1953	53 1951	1.15 1955	101 1956	64 1951	4.51 1956	101 1953	65 1954	3.49 1955	97 1953	65 1956	1.78 1956	89 1952	67 1956	4.37 1953
Balehonnur	91 1953	50 1946	0.33 1947	91 1951	52 1940	1.27 1952	95 1949	54 1940	2.31 1936	95 1950	57 1952	4.04 1956	94 1942	60 1952	8.60 1955	91 1953	60 1943	6.80 1941	84 1945	57 1955	8.63 1953
Hassan	90 1955	46 1899	2.35 1921	95 1906	47 1898	1.98 1941	98 1934	49 1898	2.28 1954	99 1942	58 1905	2.87 1899	100 1906	58 1923	5.66 1903	94 1953	61 1936	3.72 1941	88 1905	59 1918	3.25 1929
Mysore	91 1936	52 1953	1.04 1926	97 1931	54 1946	2.34 1917	100 1931	56 1933	1.87 1923	101 1931	61 1918	5.25 1921	100 1936	60 1904	5.54 1930	99 1926	59 1936	2.70 1915	92 1899	63 1956	2.82 1918
Bangalore (Central Ob- servatory.)	90 1925	46 1884	2.59 1908	94 1926	49 1884	2.65 1901	99 1925	52 1884	2.00 1911	101 1931	58 1894	3.57 1939	102 1931	62 1945	6.06 1909	100 1926	62 1890	4.00 1891	92 1914	61 1882	4.15 1949
Bangalore (Aero.)	87 1954	53 1956	0.47 1954	94 1954	54 1950	1.12 1950	97 1953	53 1950	0.73 1954	99 1956	63 1950	2.32 1953	98 1956	62 1949	2.70 1952	96 1953	62 1950	2.78 1949	90 1952	61 1953	2.61 1952
Travancore- Cochin Fort Cochin	92 1955	64 1929	5.25 1921	93 1945	67 1932	4.15 1899	93 1949	70 1954	4.01 1922	93 1948	71 1943	6.32 1956	92 1952	70 1939	9.97 1933	90 1935	69 1935	7.30 1900	89 1953	70 1943	8.42 1910
Alleppy	95 1952	65 1956	1.50 1951	95 1956	68 1953	2.35 1947	98 1949	70 1955	2.75 1947	95 1946	70 1948	10.80 1950	94 1952	69 1955	5.30 1950	94 1948	70 1956	8.95 1948	89 1953	69 1950	5.93 1949
Trivandrum	94 1945	66 1950	2.05 1918	95 1955	66 1946	3.47 1927	96 1953	69 1956	3.10 1954	95 1954	71 1956	5.11 1937	95 1942	71 1956	10.94 1926	94 1953	68 1956	6.09 1944	89 1956	70 1956	5.97 1910
Trivandrum (Aero.)	93 1955	65 1956	0.34 1956	90 1956	65 1956	1.41 1956	95 1956	68 1956	24 1956	94 1956	70 1956	3.24 1956	93 1956	72 1956	1.09 1956	88 1956	70 1956	1.20 1956	90 1956	71 1956	1.26 1956
Hill Stations Excluding Kashmir Kohima	66 1954	41 1956	0.47 1956	72 1954	41 1956	0.78 1954	80 1953	50 1954	1.42 1953	90 1956	50 1956	1.40 1955	88 1954	55 1952	2.95 1956	84 1955	59 1953	2.74 1955	84 1952	60 1956	2.95 1954
Aijal	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Shillong	70 1944	27 1937	1.65 1929	76 1952	27 1950	1.62 1914	84 1924	31 1906	7.46 1929	86 1954	44 1946	4.64 1932	84 1935	42 1941	6.68 1914	83 1924	53 1930	16.35 1934	83 1932	59 1956	8.10 1952
Cherapunji	80 1913	34 1911	3.36 1929	84 1913	33 1950	3.62 1907	87 1913	33 1912	2.05 1910	83 1938	39 1911	18.20 1922	82 1923	38 1917	31.97 1916	82 1942	53 1910	38.34 1956	83 1937	53 1910	33.00 1910
Mawsynram	..	..	0.55 1955	..	..	1.80 1955	..	..	3.95 1953	..	..	2.46 1956	..	..	17.75 1956	..	..	24.15 1956	..	..	24.40 1956

X=Highest maximum temperature.

N=Lowest minimum temperature.

R=Heaviest rainfall in 24 hours ending at 0830 hrs. I.S.T.

..=Information not available.

APPENDIX I

August			September			October			November			December			Based on datasec		
X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	Temp.	R. fall	
103 1923	69 1899	5.30 1892	101 1891	68 1899	5.34 1911	102 1899	66 1899	8.20 1895	95 1915	62 1901	12.20 1913	95 1895	52 1933	16.79 1931	1891	1891	Cuddalore.
103 1901	70 1952	4.18 1909	101 1908	68 1936	4.84 1921	100 1954	60 1911	6.73 1943	95 1952	57 1921	11.77 1930	93 1909	54 1950	6.02 1901	1901	1901	Vellore.
104 1918	69 1935	3.61 1950	102 1883	69 1884	3.95 1881	102 1920	62 1889	9.20 1888	94 1952	59 1901	9.30 1922	91 1909	57 1895	10.30 1901	1881	1881	Madras.
102 1953	72 1951	3.63 1955	100 1952	72 1956	4.13 1956	98 1951	69 1952	4.70 1954	95 1951	62 1954	6.48 1951	89 1951	61 1949	4.48 1952	1949	1949	Madras (Nungambakkam)
90 1932	69 1911	9.15 1931	89 1955	70 1950	7.27 1900	94 1941	68 1933	7.15 1913	96 1941	65 1950	3.92 1927	95 1953	62 1950	6.03 1933	1911	1881	Malabar & South E Mangalore.
90 1953	69 1950	8.05 1924	93 1952	70 1954	7.05 1955	94 1897	68 1917	7.45 1940	94 1929	61 1901	7.57 1925	94 1932	61 1895	4.53 1912	1891	1881	Kozikode.
89 1947	69 1946	4.31 1936	96 1955	69 1954	2.09 1951	95 1945	69 1954	3.00 1953	96 1952	63 1954	2.59 1948	94 1954	62 1945	3.53 1916	1945	1945	Palghat.
100 1883	67 1933	4.16 1950	100 1913	67 1919	5.02 1956	102 1896	59 1889	4.38 1904	96 1882	53 1910	6.38 1903	96 1913	51 1926	1.32 1925	1881	1881	Mysore Bellary.
91 1932	69 1955	4.30 1939	95 1905	59 1910	3.76 1933	93 1905	60 1933	5.20 1930	91 1931	47 1945	3.44 1925	91 1930	47 1945	4.30 1933	1896	1896	Chitaldrug
86 1950	61 1954	1.96 1953	92 1951	61 1952	1.80 1950	89 1954	53 1952	2.45 1956	92 1953	47 1950	2.17 1956	90 1952	48 1951	1.71 1952	1950	1950	Shimoga.
85 1947	61 1951	7.08 1949	87 1936	56 1935	3.28 1955	85 1951	55 1952	3.37 1943	85 1951	50 1934	2.20 1932	86 1945	47 1937	2.24 1937	1931	1931	Balchonnu
88 1932	60 1925	3.14 1897	90 1905	57 1906	3.56 1931	90 1905	53 1897	5.35 1902	88 1927	47 1904	4.56 1925	88 1926	44 1907	3.18 1906	1896	1896	Hassan.
93 1899	62 1928	3.75 1910	92 1936	59 1906	5.09 1940	91 1905	57 1917	4.37 1902	90 1918	52 1901	4.14 1915	89 1923	51 1945	3.09 1952	1896	1896	Mysore.
92 1899	58 1882	6.38 1890	92 1951	59 1883	4.91 1912	90 1934	56 1889	4.60 1935	88 1923	51 1889	4.51 1916	88 1926	48 1883	2.65 1941	1881	1881	Bangalore (Central servatory)
88 1951	59 1948	2.14 1954	91 1951	60 1954	2.72 1953	88 1954	58 1950	6.66 1953	89 1953	53 1950	3.29 1950	86 1953	52 1954	0.82 1952	1948	1948	Bangalore (Aero.).
90 1929	70 1946	6.13 1947	88 1955	70 1950	4.40 1936	90 1930	70 1943	9.30 1884	91 1953	67 1944	4.78 1920	91 1948	67 1945	6.09 1946	1926	1881	Travancor Cochin. Fort Coch
89 1949	70 1948	5.48 1947	90 1951	71 1950	5.28 1955	91 1946	70 1950	6.42 1945	94 1949	69 1954	5.21 1945	95 1951	65 1955	3.25 1947	1945	1945	Alleppy.
91 1953	69 1946	4.03 1932	92 1946	70 1950	4.94 1907	92 1940	70 1950	8.50 1908	93 1954	66 1944	6.41 1948	94 1955	66 1945	5.86 1919	1931	1889	Trivandru
88 1956	70 1955	0.73 1956	91 1955	71 1956	4.60 1955	87 1956	71 1955	3.26 1955	90 1954	69 1954	4.52 1955	89 1956	65 1955	1.64 1955	1954	1954	Trivand'r (Aero.)
86 1953	63 1955	4.02 1954	82 1956	62 1955	3.75 1953	81 1956	55 1956	3.30 1954	73 1955	47 1952	2.71 1955	67 1954	43 1954	0.20 1953	1952	1952	Hill Stati Excludi Kashmi Kohima.
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Aijal.
83 1944	58 1932	4.65 1916	82 1946	53 1940	8.90 1927	81 1938	42 1921	11.66 1946	78 1943	34 1937	3.78 1950	73 1918	29 1929	1.62 1926	1906	1906	Shillong.
83 1939	55 1943	26.88 1932	84 1906	55 1925	24.89 1951	85 1938	50 1947	23.25 1919	80 1915	44 1946	13.08 1917	74 1951	39 1929	7.47 1926	1906	1906	Cherrapu
..	..	27.00 1956	..	..	20.95 1951	..	..	12.20 1952	..	..	6.15 1952	..	..	0.50 1954	..	1951	Mawsynr

X=Highest maximum temperature.

N=Lowest minimum temperature.

R=Heaviest rainfall in 24 hours ending at 0830 hrs. I.S.T.

..=Information not available.

	January			February			March			April			May			June			July		
	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R
Darjeeling (Raj Bhawan)	66 1952	25 1953	1.50 1889	63 1955	23 1905	1.69 1940	74 1935	31 1908	2.87 1951	80 1910	34 1933	5.32 1916	75 1916	42 1939	9.17 1887	80 1902	47 1938	17.88 1950	77 1919	39 1944	7.67 1924
Kalimpong	79 1956	33 1945	1.44 1942	79 1956	38 1945	1.77 1940	82 1923	41 1943	1.67 1948	87 1939	47 1944	2.74 1948	85 1955	50 1955	4.82 1938	87 1931	58 1956	11.89 1950	84 1937	60 1956	7.71 1939
Kathmandu	77 1946	27 1955	1.44 1942	83 1922	30 1931	1.08 1944	92 1938	34 1948	1.86 1943	99 1954	40 1945	1.71 1949	97 1924	49 1934	2.19 1956	99 1924	57 1922	4.27 1950	91 1937	61 1928	6.59 1954
Mukteswar (Kumaon)	67 1910	21 1953	3.20 1945	75 1953	18 1905	3.01 1905	77 1908	26 1907	2.67 1914	82 1956	29 1937	1.53 1919	85 1956	38 1920	2.81 1916	86 1901	44 1903	8.69 1921	87 1901	49 1930	6.28 1907
Nainital	60 1954	22 1953	3.05 1953	71 1953	29 1956	2.72 1954	71 1956	37 1955	2.37 1954	79 1954	41 1955	1.40 1953	82 1956	51 1956	8.20 1956	83 1953	53 1955	5.56 1956	79 1954	58 1955	5.62 1954
Tapoban	65 1955	24 1955	1.20 1955	80 1955	28 1956	0.21 1953	80 1955	37 1955	1.50 1955	85 1956	37 1955	1.50 1955	89 1956	46 1955	0.40 1955	90 1955	53 1955	0.36 1955	82 1955	58 1956	1.90 1955
Badrinath	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lokpal	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Jamuna Chetty	..	..	1.90 1956	..	..	2.25 1954	..	..	2.30 1952	..	..	1.20 1953	..	..	1.55 1955	..	..	3.02 1956	..	..	4.73 1953
Mussoorie	70 1949	23 1935	3.58 1943	74 1953	20 1950	3.23 1949	79 1945	28 1945	2.44 1944	84 1956	31 1944	1.70 1942	94 1949	42 1947	1.97 1943	89 1935	42 1937	5.51 1936	85 1949	54 1939	7.75 1942
Kharsali	..	..	3.05 1954	..	..	2.35 1954	..	..	3.06 1956	..	..	1.85 1953	..	..	1.70 1950	..	..	1.64 1952	..	..	2.91 1953
Rana	..	..	2.00 1956	..	..	2.17 1954	..	..	3.56 1956	..	..	1.62 1953	..	..	2.00 1953	..	..	2.98 1956	..	..	3.20 1953
Simla	66 1949	13 1945	3.10 1888	69 1953	17 1950	2.50 1908	75 1945	22 1933	2.48 1901	83 1941	30 1905	1.56 1890	86 1944	40 1924	3.85 1883	87 1932	46 1922	4.81 1906	82 1954	50 1932	6.58 1922
Dharampore	..	..	2.50 1950	..	..	3.20 1954	..	..	4.10 1955	..	..	1.50 1952	..	..	1.62 1955	..	..	3.60 1953	..	..	5.80 1952
Kyelang	..	..	2.25 1951	..	..	1.95 1956	..	..	2.70 1947	..	..	1.98 1951	..	..	1.32 1955	..	..	1.60 1948	..	..	3.07 1951
Gondla	..	..	2.18 1955	..	..	1.95 1955	..	..	3.55 1952	..	..	2.32 1955	..	..	4.15 1951	..	..	1.40 1955	..	..	4.12 1951
Kothi	..	..	3.24 1956	..	..	2.27 1955	..	..	3.53 1955	..	..	2.25 1953	..	..	2.56 1955	..	..	2.72 1955	..	..	4.25 1951
Koksar	..	..	2.78 1954	..	..	2.24 1955	..	..	5.10 1953	..	..	2.40 1954	..	..	4.40 1955	..	..	4.24 1955	..	..	3.84 1955
Dalhousie	71 1952	23 1953	5.30 1950	85 1953	29 1956	5.30 1949	85 1953	32 1952	3.80 1948	85 1956	34 1955	4.42 1951	92 1952	44 1955	2.12 1955	94 1953	48 1952	3.83 1906	91 1903	53 1955	8.93 1950
Dharamsala	70 1952	33 1954	2.62 1953	77 1953	32 1951	2.56 1954	82 1953	40 1955	2.85 1956	91 1953	49 1951	1.60 1951	98 1952	52 1951	2.95 1956	100 1903	63 1954	3.35 1906	95 1954	62 1955	7.06 1953
Pachmarhi	82 1946	30 1935	2.25 1897	89 1953	31 1929	2.05 1928	97 1892	38 1906	2.17 1936	104 1942	48 1905	1.52 1935	105 1954	59 1933	1.39 1933	105 1889	60 1931	7.95 1916	95 1912	61 1941	13.32 1882
Abu	79 1932	30 1929	1.49 1888	84 1943	32 1950	1.60 1906	92 1892	39 1945	1.07 1927	98 1948	50 1926	0.89 1900	101 1881	52 1892	3.65 1917	101 1897	57 1940	13.51 1945	91 1939	61 1910	18.13 1943
Mahabaleshwar	84 1938	43 1945	0.87 1943	88 1953	39 1942	1.14 1938	93 1953	49 1940	1.30 1955	97 1934	52 1955	3.74 1937	94 1948	57 1955	2.28 1956	90 1953	55 1943	12.22 1936	75 1951	57 1934	12.76 1950
Nandi Hills	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mercara	89 1954	49 1946	1.18 1906	89 1911	48 1936	1.25 1950	92 1921	51 1955	2.18 1928	93 1896	51 1955	3.45 1915	95 1902	49 1955	6.85 1909	86 1939	50 1955	8.12 1941	84 1955	58 1956	14.35 1924
Kodaikanal	76 1916	37 1950	7.67 19.3	76 1914	40 1955	6.25 1925	80 1926	40 1955	4.20 1947	79 1925	47 1950	4.87 1955	82 1923	46 1955	5.16 1955	75 1906	41 1912	2.38 1947	72 1918	48 1910	3.12 1924
Ootacamund	75 1952	29 1921	4.52 1909	80 1945	32 1953	2.03 1917	78 1949	34 1948	2.24 1911	81 1942	41 1944	3.31 1947	80 1941	40 1917	7.26 1955	77 1914	44 1951	5.24 1941	70 1949	44 1908	4.03 1902
Coonoor	78 1942	35 1946	7.74 1943	80 1945	37 1939	8.17 1936	80 1943	41 1949	6.20 1951	82 1956	48 1944	5.42 1951	85 1931	52 1951	2.52 1948	82 1953	49 1936	3.83 1939	77 1952	52 1955	1.65 1942

X=Highest maximum temperature.
N=Lowest minimum temperature.
R=Heaviest rainfall in 24 hours ending at 0830 hrs. I.S.T.
..=Information not available.

August			September			October			November			December			Based on data since		
X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	Temp.	R. fall	
77 1944	47 1946	9.35 1915	80 1900	50 1940	1940 1899	74 1944	40 1913	13.17 1929	72 1943	31 1915	8.65 1912	68 1947	29 1905	1.23 1885	1891	1881	Darjeeli (Raj Bh)
85 1944	50 1955	5.58 1950	84 1921	57 1924	8.11 1929	83 1944	48 1944	8.12 1929	79 1956	39 1944	2.00 1948	80 1953	31 1922	1.14 1934	1921	1926	Kalimp
92 1939	61 1954	4.00 1945	92 1938	56 1940	2.81 1936	92 1938	42 1931	1.87 1937	85 1931	33 1938	1.12 1948	83 1917	27 1954	0.60 1937	1914	1935	Kathma
79 1928	52 1919	8.02 1948	78 1946	44 1940	10.02 1914	77 1909	35 1913	7.18 1910	71 1953	30 1918	1.78 1927	71 1944	23 1954	1.77 1922	1901	1901	Muktesv (Kumao)
77 1956	55 1956	7.47 1954	74 1956	51 1933	3.51 1955	71 1956	42 1955	11.84 1956	70 1953	37 1956	0	62 1953	30 1955	0.14 1956	1953	1953	Nain tal
82 1956	57 1956	1.80 1954	82 1956	52 1955	1.09 1955	80 1956	40 1956	3.20 1955	71 1955	33 1956	0.03 1954	70 1956	32 1955	0.25 1953	1953	1953	Tapobar
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Badrina
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Lokpal
..	..	4.80 1955	..	..	2.50 1956	..	..	3.30 1955	..	..	1.18 1951	..	..	1.10 1953	..	..	Jamuna Chetty
77 1953	54 1937	11.90 1931	61 19.6	43 1940	7.86 1947	78 1951	38 1945	7.80 19.6	77 1952	34 1937	1.20 1928	89 1953	25 1954	2.46 1936	1926	1926	Mussoo
..	..	3.05 1952	..	..	3.33 1955	..	..	5.11 19.6	..	..	0.15 1951	..	..	1.37 1953	..	1951	Kharsi
..	..	3.95 1953	..	..	2.57 1955	..	..	3.35 19.6	..	..	1.19 1956	..	..	2.10 1953	..	1951	Rana
82 1951	51 1903	8.94 1901	77 19.6	41 1940	5.35 1892	75 1938	37 1904	4.45 1884	70 1952	30 1911	2.71 1894	68 1932	21 1937	3.01 1923	1891	1891	Simla
..	..	6.50 1954	..	..	8.40 1955	..	..	7.85 19.6	..	..	5.15 1951	..	..	0.83 1956	..	1947	Dhara
..	..	1.78 1953	..	..	5.05 1950	..	..	2.50 1956	..	..	1.72 1951	..	..	1.05 1956	..	1947	Kyellar
..	..	1.91 1953	..	..	4.85 1954	..	..	6.25 1955	..	..	3.25 1951	..	..	1.91 1953	..	1951	Gondli
..	..	3.35 1952	..	..	4.03 1954	..	..	3.91 1955	..	..	2.00 1951	..	..	2.51 1953	..	1951	Kothi
..	..	2.72 1952	..	..	2.78 1958	..	..	6.60 1955	..	..	0.90 1954	..	..	1.12 1952	..	1952	Koksa
78 1956	53 1952	7.80 1951	79 19.6	51 1953	7.41 1957	79 1952	41 1953	11.30 1955	77 1952	38 1953	2.32 1951	75 1952	26 1954	2.50 1958	1947	1947	Dalhoi
85 1953	63 1952	6.42 1952	85 1951	58 1953	10.01 1955	83 1953	53 1955	7.75 1955	76 1953	45 1951	1.18 1951	72 1953	35 1954	1.74 1952	1951	1951	Dhara
86 1899	59 1939	8.06 1953	96 1953	55 1940	3.79 1932	89 1920	41 1933	6.46 1955	83 1951	35 1912	3.90 1912	82 1941	30 1926	2.48 1885	1881	1831	Pachm
88 1883	59 1913	19.09 1941	88 1929	59 1909	18.47 1950	89 1941	51 1947	5.83 1917	84 1929	49 1933	1.72 1896	82 1941	31 1929	100 1898	1881	1881	Abu
80 1950	57 1940	13.33 1956	82 1951	54 1935	12.88 1950	83 1951	52 1931	7.54 1938	84 1950	50 1955	5.85 1948	83 1953	47 1940	1.56 1933	1931	1929	Mahab war
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Nandi
80 1951	54 1920	7.66 1884	81 1951	54 1935	4.07 1938	83 1899	51 1948	5.97 1837	82 1918	51 1947	3.40 1925	84 1903	49 1937	3.38 1902	1891	1881	Mercar
70 1905	47 1913	4.68 1935	71 1928	48 1907	4.10 1914	70 1914	43 1935	5.79 1930	71 1927	39 1901	7.76 1948	73 1910	37 1922	5.24 1903	1901	1901	Kodaik
71 1948	44 1943	2.38 1909	73 1951	41 1916	2.57 1951	71 1941	32 1953	4.03 1916	74 1952	30 1949	8.26 1933	75 1948	30 1947	6.02 1941	1901	1901	Ootaca
76 1944	48 1958	2.78 1933	76 1934	48 1935	2.88 1955	78 1941	43 1933	5.51 1938	76 1938	38 1942	6.42 1948	78 1941	36 1956	9.00 1952	1931	1931	Coonoc

X=Highest maximum temperature

N=Lowest minimum temperature.

R=Heaviest rainfall in 24 hours ending at 0830 hrs. I.S.T.

..=Information not available.

APPENDIX I

	January			February			March			April			May			June			July			
	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	
Sikkim																						
Thangu	..	..	0.50	..	..	1.50	..	..	0.83	..	..	0.56	..	..	1.00	..	..	0.80	..	..	1.30
	..	..	1953	..	..	1956	..	..	1951	..	..	1957	..	..	1954	..	..	1952	..	..	1952
Chungtharg	..	..	1.35	..	..	3.00	..	..	3.40	..	..	2.70	..	..	2.57	..	..	2.98	..	..	2.98
	..	..	1951	..	..	1956	..	..	1956	..	..	1955	..	..	1957	..	..	1955	..	..	1955
Lachen	..	..	1.80	..	..	1.63	..	..	1.70	..	..	1.20	..	..	1.3	..	..	1.80	..	..	2.07
	..	..	1954	..	..	1952	..	..	1956	..	..	1957	..	..	1956	..	..	1952	..	..	1952
Tibet																						
Yatung (Chumbi)	51	—1	0.32	67	—1	0.30	67	8	1.00	70	13	1.10	72	16	1.00	74	24	1.00	72	28	1.51	
	1956	1956	1956	1952	1953	1952	1953	1954	1953	1954	1954	1953	1954	1951	1953	1954	1951	1954	1953	1954	1954	
Lhasa	68	3	0	68	8	1.00	72	14	0.36	76	24	0.30	83	27	0.76	87	37	1.32	85	42	2.18	
	1949	1946	..	1952	1948	1946	1953	1948	1948	1947	1952	1947	1955	1949	1948	1956	1947	1952	1952	1956	1955	
Hydro-meteorological Observatories, Damodar Catchment.																						
Bokaro	86	37	1.95	95	36	0.81	106	48	0.75	110	58	1.82	113	63	1.40	113	70	2.79	98	73	8.51	
	1956	1956	1953	1952	1950	1953	1955	1954	1952	1956	1950	1951	1956	1951	1956	1953	1953	1950	1952	1956	1953	
Hazaribagh	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ramgarh	87	36	1.01	96	41	1.59	106	47	0.68	111	57	0.89	115	67	0.93	115	71	3.00	108	72	3.17	
	1956	1955	1953	1952	1956	1953	1955	1956	1954	1956	1953	1952	1956	1951	1956	1955	1952	1953	1951	1951	1953	
Panchet Hills	87	44	1.61	94	48	0.56	106	54	0.62	113	64	0.4	113	69	1.32	115	72	2.07	96	75	5.08	
	1954	1955	1954	1956	1956	1956	1955	1954	1956	1956	1955	1956	1955	1956	1956	1953	1953	1953	1954	1956	1953	
Asansol	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dhanwar	..	..	1.40	..	..	0.15	..	..	0.05	..	..	0.38	..	..	1.50	..	..	3.50	..	..	4.96
	..	..	1955	..	..	1955	..	..	1955	..	..	1953	..	..	1952	..	..	1956	..	..	1955
Dhumri	..	..	0.42	..	..	0.40	..	..	0.52	..	..	0.53	..	..	2.78	..	..	2.00	..	..	3.76
	..	..	1956	..	..	1956	..	..	1955	..	..	1951	..	..	1954	..	..	1953	..	..	1955
Bishungarh	..	..	2.20	..	..	0.42	..	..	0.81	..	..	1.40	..	..	1.81	..	..	3.28	..	..	4.50
	..	..	1953	..	..	1954	..	..	1952	..	..	1952	..	..	1954	..	..	1951	..	..	1951
Palganj (Giridih)	..	..	1.70	..	..	0.40	..	..	0.83	..	..	1.69	..	..	3.49	..	..	3.16	..	..	2.90
	..	..	1953	..	..	1953	..	..	1950	..	..	1952	..	..	1956	..	..	1951	..	..	1951
Chandwa	..	..	2.05	..	..	1.00	..	..	1.06	..	..	0.93	..	..	1.05	..	..	2.70	..	..	3.47
	..	..	1955	..	..	1953	..	..	1951	..	..	1951	..	..	1956	..	..	1952	..	..	1953
Madanadi Catchment.																						
Barmul	90	43	0	98	46	1.50	107	52	0.54	110	66	0.61	111	69	1.42	113	72	7.90	94	71	2.00	
	1955	1955	..	1955	1956	1956	1955	1952	1956	1956	1956	1955	1956	1955	1956	1955	1955	1956	1955	1955	1956	
Hirakud	90	50	0	97	50	1.42	108	61	0.25	113	69	0.13	116	72	0.95	116	73	4.00	93	72	3.00	
	1955	1956	..	1956	1946	1956	1955	1956	1956	1956	1956	1955	1956	1955	1956	1955	1955	1956	1956	1955	1956	
Sonepur	90	49	0	101	49	0.52	108	59	0.09	111	69	0.43	116	74	1.00	116	73	2.71	95	71	3.13	
	1955	1955	..	1955	1956	1956	1955	1955	1956	1956	1956	1955	1956	1956	1955	1955	1956	1956	1955	1955	1955	
Ginabahr	88	41	0.35	95	42	0.68	105	51	0.05	109	62	0.11	114	69	1.35	113	70	2.53	93	69	3.68	
	1956	1955	1955	1956	1956	1956	1955	1955	1956	1956	1955	1955	1956	1956	1956	1955	1956	1955	1956	1955	1956	
Madanadi Catchment.																						
Punasa	91	42	0.76	104	43	0.74	108	53	0.14	113	59	0.15	117	67	2.23	115	71	4.09	100	71	3.09	
	1954	1954	1955	1953	1951	1952	1955	1952	1951	1953	1954	1953	1954	1954	1956	1953	1956	1956	1953	1955	1952	
Bagratawa	90	37	1.23	100	40	0.61	107	51	0.64	111	57	0.12	117	69	1.14	115	69	3.47	100	63	5.50	
	1956	1954	1951	1953	1956	1955	1953	1956	1954	1954	1955	1956	1954	1955	1956	1953	1955	1951	1953	1956	1953	
Thikri	95	42	0.80	103	36	0.33	109	51	0	114	61	0.08	116	72	1.06	114	68	3.68	103	70	4.25	
	1950	1953	1953	1953	1950	1949	1953	1953	..	1949	1955	1952	1951	1952	1949	1953	1952	1953	1950	1955	1950	
apti Catchment.																						
Nandurbar	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Madanadi Catchment.																						
Jhadol	83	32	0	93	33	0.30	100	43	0.40	103	51	0.30	113	65	0.70	106	71	1.05	96	71	4.56	
	1956	1956	..	1956	1956	1955	1956	1956	1956	1956	1956	1956	1956	1955	1956	1955	1955	1955	1955	1956	1956	
Dharoi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

X—Highest maximum temperature.

N—Lowest minimum temperature.

R—Heaviest rainfall in 24 hours ending at 0830 hrs I.S.T.

..—Information not available.

APPENDIX I

August			September			October			November			December			Based on data since		
X	N	R	X	N	R	X	N	R	X	N	R	X	N	R	Temp.	R. fall	
..	..	0.73 1954	..	..	1.32 1953	..	..	1.25 1953	..	..	0.80 1951	..	..	0.50 1954	..	1951	Sikkim Thangu
..	..	3.90 1954	..	..	2.25 1951	..	..	4.25 1953	..	..	1.25 1951	..	..	0.52 1956	..	1951	Chungti
..	..	2.28 1952	..	..	1.55 1951	..	..	1.52 1953	..	..	0.87 1951	..	..	1.20 1954	..	1951	Lachen
72 1953	29 1954	2.31 1954	73 1954	27 1955	1.60 1952	69 1955	24 1955	2.10 1956	66 1952	14 1952	1.20 1956	57 1952	7 1952	0.31 1956	1952	1952	Tibet. Yatung (mbi).
85 1951	42 1956	2.10 1955	84 1952	33 1951	0.95 1955	79 1952	20 1947	0.50 1946	69 1950	13 1953	0.08 1951	63 1952	6 1949	0	1946	1946	Lhasa.
94 1954	72 1953	4.21 1953	95 1955	66 1950	4.65 1952	95 1951	53 1954	1.78 1956	93 1950	41 1952	0.92 1953	89 1950	37 1955	0.39 1954	1950	1950	Hydro- mologica Observat Damod Catchm Bokaro
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Hazariba
96 1952	70 1953	6.69 1953	95 1955	65 1950	6.86 1954	100 1956	52 1954	3.21 1952	91 1950	40 1952	0.68 1953	88 1950	35 1955	2.22 1950	1950	1950	Ramgarh
96 1953	75 1956	3.26 1953	96 1955	71 1953	7.68 1956	94 1953	59 1954	1.45 1956	89 1952	52 1954	1.70 1955	89 1953	44 1955	0.49 1954	1950	1950	Panchet
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Asansol
..	..	2.30 1954	..	..	6.35 1954	..	..	1.75 1952	..	..	0.04 1956	..	..	0.56 1956	..	1951	Dhanwa
..	..	6.75 1956	..	..	4.30 1954	..	..	1.65 1956	..	..	0.36 1953	..	..	0.32 1954	..	1950	Dhumri
..	..	5.60 1953	..	..	3.10 1954	..	..	1.56 1956	..	..	0.62 1956	..	..	0.38 1956	..	1950	Bishunga
..	..	3.02 1955	..	..	4.12 1954	..	..	2.05 1956	..	..	1.17 1956	..	..	0.93 1954	..	1950	Palganj (Giri-dih)
..	..	3.35 1953	..	..	3.00 1953	..	..	1.95 1954	..	..	0.62 1956	..	..	0.26 1954	..	1951	Chandi
93 1955	74 1956	1.86 1955	93 1956	72 1956	7.74 1956	91 1955	66 1956	3.99 1956	81 1956	51 1956	1.55 1955	87 1956	41 1955	0	1955	1955	Mahans Catch Barmul
93 1956	73 1956	5.27 1955	94 1955	73 1955	11.10 1955	93 1955	69 1956	3.60 1956	89 1956	55 1955	0.23 1956	86 1956	45 1955	0	1955	1955	Hirakud
93 1955	72 1955	6.32 1956	96 1956	73 1956	11.33 1955	91 1956	67 1956	1.16 1955	92 1956	55 1955	0.08 1955	87 1956	46 1955	0	1955	1955	Sonepur
92 1955	71 1956	7.80 1956	94 1956	70 1956	2.88 1955	94 1955	58 1955	1.45 1955	89 1956	43 1956	0.36 1956	88 1956	39 1955	0.20 1956	1955	1955	Ginabab
96 1956	69 1952	6.90 1955	99 1951	58 1953	6.24 1954	102 1951	51 1952	1.77 1955	98 1951	43 1956	0.26 1956	94 1953	39 1955	0.17 1956	1951	1951	Narbad Catch Punasa
94 1954	71 1956	5.55 1952	95 1953	69 1951	7.49 1951	97 1951	48 1952	1.90 1955	94 1953	42 1952	1.66 1956	90 1954	36 1955	0.38 1956	1951	1951	Bagrat
97 1953	69 1950	3.60 1953	102 1951	66 1952	4.60 1954	105 1949	52 1955	2.07 1955	100 1951	44 1956	0.06 1956	93 1953	41 1952	0.31 1956	1949	1949	Thikri
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Tapti (ment Nandus)
93 1955	67 1956	1.65 1955	91 1956	61 1956	3.50 1955	93 1956	45 1955	2.20 1956	90 1956	31 1956	0	81 1956	31 1955	0.17 1956	1955	1955	Sabarn Catch Jhadol.
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Dharo

X=Highest maximum temperature.

N=Lowest minimum temperature.

R=Heaviest rainfall in 24 hours ending at 0830 hrs. I.S.T.

..=Information not available.

MONTHLY MEANS OF UPPER WINDS, DECEMBER, 1956

During the month, observations of velocity and direction of upper winds were made at 52 stations in India. Out of these, at 42 stations all the observations were taken by means of pilot balloons and at 10 stations some observations were made by means of pilot balloons while the other observations by the radiowind method. Particulars of the stations, their co-ordinates and the approximate times of the regular pilot balloon and rawin ascents at each station are given in the table overleaf. All radiowind ascents have been indicated by means of an asterisk (*) against the scheduled hours.

Data from ascents made at the scheduled time or within two hours on either side of the scheduled times of regular observations have been used for averaging.

Data up to 9.0 km. a.m.s.l. are given under Table IV and data above 9.0 km. a.m.s.l. under Table V.

In Tables IV and V :

n—represents the number of observations,

V—represents the mean wind speed in knots irrespective of direction,

v—represents the resultant mean velocity in knots,

D—represents the direction of the resultant mean wind in degrees East of North.

Mean and resultant winds are given in this publication for the following heights :

Surface, 0.15 km. a.g., 0.3, 0.6, 0.9, 1.5, 2.1, 3.0, 4.5, 5.4, 6.0, 7.2, 9.0, 10.5, 12.0, 14.1, 16.2, 18.0, 20.0, 23.0, 26.0, 30.0 and 35.0 km. a.m.s.l. Of these the levels 1.5, 3.0, 5.4, 7.2, 9.0, 12.0, 14.1 and 16.2 km. a.m.s.l. are considered as the best approximations to the standard pressure levels 850, 700, 500, 400, 300, 200, 150 and 100 mb. respectively.

PARTICULARS OF PILOT BALLOON AND RAWIN STATIONS IN INDIA

Station	Lat. N	Long. E	Height of Anemometer head a.m.s.l. in metres	Date of opening	Approximate times of flight (IST)		
Agartala	23°53'	91°15'	17	28th November, 1951	0130	0730	1430
Ahmedabad	23°04'	72°38'	61	19th May, 1928	0130	0730	1430
Amausi	26°45'	80°53'	126	20th November, 1950	0130	0730	1430
Ambala	30°23'	76°46'	282	1st April, 1941	0130	0730	1430
Anantapur	14°41'	77°37'	364	12th February, 1946		0730	1430
Asansol	23°41'	86°59'	126	29th May, 1942	0130	0730	1430
Baghdogra	26°38'	88°19'	138	7th June, 1953		0730	1430
Bairagarh	23°17'	77°21'	524	26th February, 1943	0130	0730	1430
Bamrauli	25°27'	81°44'	103	28th February, 1930	0130	0830*	1430 2030
Bangalore	12°58'	77°35'	936	19th May, 1915	0130	0730	1430
Bareilly	28°22'	79°24'	180	12th January, 1943		0730	1430
Begumpet	17°27'	78°28'	542	1st September, 1929	0130	0730	1430
Bhagalpur	25°14'	86°57'	60	19th May, 1950		0730	1430
Bhubaneswar	20°15'	85°50'	485	5th December, 1942	0130	0730	1430
Bhuj	23°15'	69°48'	111	14th September, 1937	0130	0730	1430
Bikaner	28°00'	73°18'	228	8th October, 1946	0130	0730	1430
Chikalhana	19°51'	75°24'	583	7th October, 1951	0130	0730	1430
Cochin†	09°58'	76°14'	3	16th March, 1942	0130	0730	1430
Darjeeling	27°03'	88°16'	2115	21st May, 1956		0730	1430
Dum Dum	22°39'	88°27'	11	14th May, 1921	0130	0830*	1430 2030
Gadag	15°25'	75°38'	650	3rd May, 1943	0130	0730	1430
Gauhati	26°05'	91°43'	55	12th March, 1955	0130	0830*	1430 2030
Gaya	24°45'	84°57'	113	19th March, 1937	0130	0730	1430
Gopalpur	19°16'	84°53'	24	15th February, 1946	0130	0730	1430
Gorakhpur	26°45'	83°22'	83	5th January, 1943		0730	1430
Gwalior	26°14'	78°15'	211	7th May, 1938	0130	0730	1430
Imphal	24°51'	93°58'	798	8th March, 1952		0730	1430
Jabalpur	23°10'	79°57'	402	30th July, 1928	0130	0730	1430
Jagdapur	19°05'	82°02'	561	25th March, 1948	0130	0730	1430
Jaipur	26°49'	75°48'	387	6th June, 1953		0730	1430
Jamshedpur	22°49'	86°11'	144	23rd July, 1942		0730	1430
Jharsuguda	21°55'	84°05'	234	1st May, 1944	0130	0730	1430
Jodhpur	26°18'	73°01'	228	15th October, 1934	0130	0830*	1430 2030
Madras	13°00'	80°11'	29	8th April, 1926	0130	0830*	1430 2030
Mangalore	12°52'	74°51'	40	4th June, 1928	0130	0730	1430
Masulipatnam	16°11'	81°08'	9	8th April, 1942	0130	0730	1430
Minicoy	08°18'	73°00'	14	14th April, 1941	0130	0730	1430
Mohanbari	27°29'	59°01'	110	1st June, 1948	0130	0730	1430
Mussoorie	30°27'	78°05'	2050	3rd November, 1955		0730	1430
Nagpur	21°09'	79°07'	316	23rd April, 1943	0130	0830*	1430 2030
New Delhi	28°35'	77°12'	227	20th October, 1936	0130	0830*	1430 2030
Poona	18°32'	73°51'	560	5th January, 1925	0130	0730	1430
Port Blair	11°40'	92°43'	92	29th October, 1945	0130	0730	1430 2030
Raipur	21°14'	81°39'	308	15th July, 1944	0130	0730	1430
Santacruz	19°05'	72°53'	12	14th May, 1933	0130	0830*	1430 2030
Texpur	26°37'	92°47'	78	12th August, 1932	0130	0730	1430
Tiruchirapalli	10°46'	78°43'	95	22nd June, 1936	0130	0730	1430
Trivandrum	08°29'	76°57'	72	8th December, 1928	0130	0830*	1430 2030
Udaipur	24°35'	73°42'	587	24th June, 1947	0130	0730	1430
Vengurla	15°52'	73°38'	8	22nd November, 1941	0130	0730	1430
Veraval	20°54'	70°22'	16	13th October, 1941	0130	0730	1430
Visakhapatnam	17°43'	83°14'	9	24th September, 1928	0130	0730	1430

*Rawin ascents.
†Naval Meteorological Office.

TABLE IV.—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS,

Winds up to 9.0 Km. above mean sea level

December 1956

Station.	AGARTALA												AHMEDABAD															
	0130				0730				1430				0130				0730				1430							
Time in I. S. T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	0.6	0.3	081	31	0.8	0.3	096	31	3.4	2.6	329	31	3.6	2.5	022	31	4.3	4.0	046	31	5.2	2.1	024				
0.15 a. g. . .	31	5.5	3.0	355	31	4.8	2.6	050	31	4.3	3.1	318	31	11.6	7.1	033	30	14.6	12.7	062	31	6.4	1.9	026				
0.3 a.m.s.l. . .	31	6.0	3.4	339	31	4.9	3.2	030	31	4.5	3.3	326	31	11.2	6.4	035	30	14.0	10.4	070	31	6.3	1.5	017				
0.6 " . . .	31	6.6	4.2	322	31	5.9	3.3	012	31	4.7	3.0	330	31	9.7	4.4	038	30	11.2	6.0	082	31	5.7	1.0	024				
0.9 " . . .	31	6.6	4.6	306	31	7.0	3.3	336	31	5.1	2.7	313	31	9.4	2.2	029	30	9.4	3.3	087	31	6.0	0.5	021				
1.5 " . . .	31	8.5	6.0	286	31	8.9	6.1	283	31	7.7	5.8	285	31	9.1	2.1	242	30	9.0	1.7	272	31	8.5	3.3	276				
2.1 " . . .	27	11.6	10.0	278	31	11.6	9.8	280	31	11.9	10.0	285	28	11.9	6.3	262	30	11.6	7.0	284	31	12.2	7.9	275				
3.0 " . . .	24	18.0	16.6	273	31	18.2	17.6	276	28	20.1	19.2	276	22	18.7	13.9	274	28	17.1	11.2	278	30	18.7	14.2	275				
4.5 " . . .					21	27.2	25.4	267	19	27.7	27.0	270	1	7.0	7.0	280	25	23.6	19.8	283	27	26.1	22.8	282				
5.4 " . . .					13	29.9	29.1	265	14	33.1	32.1	273					19	26.7	23.6	288	26	33.7	30.5	284				
6.0 " . . .					7	31.0	29.9	261	13	36.6	35.8	274					17	30.3	26.2	280	24	39.0	35.2	283				
7.2 " . . .									4	37.3	36.8	272					4	42.3	39.2	260	19	41.7	38.2	283				
9.0 " . . .									1	58.0	58.0	255									8	48.5	44.5	276				

Station.	AMAUSI												AMBALA															
	0130				0730				1430				0130				0730				1430							
Time in I. S. T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	2.3	0.8	312	31	3.1	1.0	397	31	5.5	2.1	317	31	4.8	2.6	333	31	3.3	1.2	327	31	5.3	1.6	306				
0.15 a. g. . .	31	10.0	4.6	334	31	10.3	4.2	332	31	7.2	2.7	305	31	13.2	7.5	348	31	11.8	6.0	340	31	8.8	3.8	303				
0.3 a.m.s.l. . .	31	10.0	4.5	336	31	10.2	3.7	337	31	7.3	3.4	306	31	7.8	4.3	349	31	5.5	2.6	345	31	6.6	2.7	298				
0.6 " . . .	31	8.9	4.7	312	31	8.2	4.0	298	31	7.8	3.5	299	31	12.3	6.3	347	31	12.0	4.5	339	31	9.0	3.8	314				
0.9 " . . .	30	9.1	5.8	298	31	8.5	5.4	302	31	8.4	4.5	294	31	10.3	3.7	336	31	11.0	4.1	335	31	9.3	3.9	310				
1.5 " . . .	30	11.9	10.4	294	31	11.2	8.3	297	30	11.3	8.0	290	31	9.8	3.7	285	31	10.3	3.1	301	31	10.0	3.0	281				
2.1 " . . .	29	15.7	14.4	286	31	14.6	12.2	292	29	14.8	11.5	292	31	8.9	4.5	280	31	10.5	3.8	288	31	11.7	3.5	262				
3.0 " . . .	23	18.7	17.4	280	26	19.4	17.2	277	27	19.3	17.9	285	30	11.0	4.8	273	29	10.6	4.4	281	30	14.1	7.5	287				
4.5 " . . .					12	26.6	24.1	278	20	30.0	28.8	280	2	24.5	20.3	249	21	20.9	16.7	285	25	22.7	18.7	282				
5.4 " . . .					5	36.1	35.7	280	16	35.4	31.8	280	1	22.0	22.0	200	13	31.4	21.7	277	19	31.8	29.4	292				
6.0 " . . .					3	29.4	28.3	281	14	38.2	36.8	268	1	25.0	25.0	210	6	22.7	17.7	278	16	37.7	12.1	352				
7.2 " . . .					1	33.0	33.0	265									1	29.0	29.0	290	12	46.7	43.3	290				
9.0 " . . .																	1	63.0	63.0	290	10	64.6	61.0	292				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

December 1956

Station.	ANANTAPUR								ASANSOL												BAGHDOGRA		
	0730				1430				0130				0730				1430				0130		
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface . . .	31	1.4	0.8	072	31	7.1	6.7	079	31	2.5	1.8	302	31	3.3	2.6	300	31	2.4	2.2	312	31	2.7	2.4
0.15 a. g. . .	31	6.6	5.3	105	31	9.1	8.7	083	31	10.2	6.1	350	31	8.2	5.2	344	31	5.2	4.0	326	30	4.6	2.5
0.3 a.m.s.l. . .									31	10.4	6.3	352	31	8.7	5.1	354	31	5.5	4.3	325	30	4.4	1.5
0.6 " . . .	31	9.8	8.9	110	31	9.7	9.4	088	31	10.8	6.4	336	31	9.5	5.2	340	31	6.2	4.0	333	30	4.0	0.6
0.9 " . . .	30	13.1	12.7	980	31	9.8	9.5	090	31	10.1	7.0	310	31	9.5	6.1	312	31	6.5	5.2	319	30	3.5	0.8
1.5 " . . .	28	12.7	11.6	092	31	10.3	9.8	092	30	13.4	11.6	294	31	12.1	9.8	305	31	11.9	10.6	310	30	5.6	1.2
2.1 " . . .	27	11.9	10.2	083	30	10.5	9.4	083	27	17.1	16.0	297	29	16.0	13.0	300	29	18.6	16.6	302	28	8.5	1.1
3.0 " . . .	27	10.0	7.8	074	27	9.1	7.0	069	17	18.4	17.2	279	24	20.3	19.0	293	27	23.3	22.1	292	17	15.6	11.7
4.5 " . . .	25	9.8	6.5	017	24	9.0	5.0	027					10	26.2	24.1	281	20	31.3	29.8	282			
5.4 " . . .	24	12.3	7.9	355	24	12.3	7.5	349					3	20.3	19.4	273	8	31.4	30.5	280			
6.0 " . . .	24	12.7	8.6	355	23	13.8	9.0	337					2	26.0	25.3	262	7	32.7	31.8	273			
7.2 " . . .	23	15.9	10.5	300	21	15.3	9.7	307					2	32.0	31.9	262	4	35.0	27.4	264			
9.0 " . . .	19	22.3	17.9	268	14	21.4	17.1	268									3	54.0	53.9	259			

Station.	BAGHDOGRA								BAIRAGARH												BAMRAUL		
	0730				1430				0130				0730				1430				0130		
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface . . .	31	2.1	1.9	005	31	3.2	1.7	228	31	2.8	1.2	080	31	2.9	1.5	075	31	3.5	0.8	270	31	1.2	0.2
0.15 a. g. . .	31	5.7	4.7	045	31	3.8	2.0	228	31	11.1	5.1	083	31	12.1	7.3	111	31	5.3	1.4	243	30	8.5	2.5
0.3 a.m.s.l. . .	31	5.7	4.6	066	31	3.8	2.0	225													30	8.6	3.8
0.6 " . . .	31	5.0	3.3	080	31	4.0	2.9	214	31	10.7	5.5	083	31	10.4	5.9	104	31	5.1	1.3	239	29	9.7	6.5
0.9 " . . .	31	4.6	2.2	085	31	3.8	2.6	214	31	10.1	2.0	080	31	10.8	2.2	091	31	5.2	1.5	233	27	11.7	9.9
1.5 " . . .	30	4.8	2.2	100	31	5.4	1.8	247	31	9.9	4.8	251	31	9.1	2.9	290	31	7.3	4.2	274	28	14.4	13.5
2.1 " . . .	30	8.3	1.3	123	31	8.0	3.6	278	31	12.7	9.4	262	31	12.2	9.0	276	31	12.0	9.2	279	19	18.9	17.7
3.0 " . . .	28	13.5	7.9	283	27	17.0	15.6	291	28	16.7	13.9	278	30	17.3	13.2	282	28	18.1	14.9	277			
4.5 " . . .	19	28.0	27.1	277	18	30.7	30.2	277	1	15.0	15.0	290	21	24.3	20.8	288	24	28.5	25.0	283			
5.4 " . . .	10	27.7	26.0	279	15	39.8	39.0	274					16	29.3	25.8	277	24	35.7	31.5	280			
6.0 " . . .	5	38.0	38.0	279	15	47.9	46.9	273					13	31.4	27.5	277	23	39.2	53.3	281			
7.2 " . . .					6	48.0	45.9	275					2	35.5	31.5	275	17	44.9	41.2	284			
9.0 " . . .					4	56.7	53.4	289									11	52.8	48.9	288			

TABLE IV--MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

December 1956

Station	BAMRAULI												BANGALORE															
	0830*				1430				2030*				0130				0730				1430							
Time in I.S.T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	2.0	0.6	203	31	3.8	2.0	309	31	1.5	0.2	137	31	6.7	6.4	093	31	6.4	6.1	090	31	8.5	8.1	096				
0.15 a.g. . .	31	6.0	1.7	240	31	5.9	3.5	309	29	6.7	2.8	322	31	14.8	14.3	087	31	14.0	13.4	085	31	9.4	8.7	092				
0.3 a.m.s.l. .	31	6.4	1.9	247	31	5.9	3.5	306	29	7.3	3.2	315																
0.6 ,, . . .	31	7.4	4.2	266	31	6.1	3.8	297	29	8.9	4.4	295																
0.9 ,, . . .	31	8.2	5.6	278	31	7.3	5.3	297	29	9.3	6.5	286																
1.5 ,, . . .	31	11.7	8.3	290	30	11.2	9.1	292	29	10.7	9.3	278	26	14.7	13.6	082	28	16.5	15.7	087	31	11.1	11.0	085				
2.1 ,, . . .	31	14.3	11.4	283	29	15.3	13.7	288	29	14.2	13.1	281	23	10.9	9.7	080	25	12.8	11.1	086	29	11.6	11.2	082				
3.0 ,, . . .	31	20.3	17.7	281	27	21.6	20.4	283	29	20.1	18.8	282	22	11.1	9.8	060	24	9.7	8.6	077	21	9.8	8.4	067				
4.5 ,, . . .	28	30.2	28.0	275	24	31.1	28.8	282	26	29.0	26.9	275	18	12.3	7.9	060	22	9.9	6.7	059	17	9.2	6.7	045				
5.4 ,, . . .	25	37.1	35.6	270	23	39.5	36.7	277	26	35.1	32.7	270	12	13.1	4.4	046	21	10.6	6.6	024	16	10.1	6.7	028				
6.0 ,, . . .	24	41.4	39.9	269	20	41.5	38.0	272	25	38.7	35.9	269	6	12.2	6.8	065	21	10.0	5.6	023	16	10.4	7.2	021				
7.2 ,, . . .	22	50.0	44.4	265	15	49.1	45.5	271	25	46.4	42.8	269					17	12.5	5.3	316	14	12.5	2.4	003				
9.0 ,, . . .	20	59.0	54.0	264	3	62.3	55.1	263	20	62.4	57.4	264					14	17.4	15.6	255	12	16.3	14.1	250				

Station	BAREILLY								BEGUMPET								BHAGALPUR											
	0730				1430				0130				0730				1430				0730							
Time in I.S.T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	3.2	0.8	324	31	3.7	1.3	320	31	2.0	1.6	097	31	2.0	1.9	120	31	5.1	3.8	110	31	1.4	1.1	260				
0.15 a.g. . .	31	10.0	5.4	334	31	6.9	3.3	305	31	11.0	9.2	103	31	9.4	7.6	118	31	7.2	5.9	098	30	6.6	3.3	297				
0.3 a.m.s.l. .	31	9.2	4.7	335	31	6.7	3.2	306													30	6.7	3.2	315				
0.6 ,, . . .	31	11.9	6.3	312	31	8.5	3.5	317	31	6.6	5.5	097	31	5.5	4.4	119	31	6.7	5.4	100	30	6.9	4.1	307				
0.9 ,, . . .	31	12.3	6.1	310	31	9.6	4.2	311	31	12.0	10.4	104	31	11.7	9.4	108	31	6.5	5.4	097	30	7.9	5.0	301				
1.5 ,, . . .	31	12.1	6.3	308	31	11.5	5.9	33	31	9.3	6.9	083	29	9.9	7.9	078	31	6.5	4.7	092	30	12.5	9.5	298				
2.1 ,, . . .	30	14.4	9.0	297	30	13.7	9.5	292	30	9.8	6.8	061	29	10.6	7.4	064	29	7.9	6.1	065	29	16.7	14.0	293				
3.0 ,, . . .	28	15.7	7.4	297	27	16.3	14.4	289	30	8.7	5.1	035	28	11.0	6.7	054	29	10.7	5.0	025	22	20.9	19.8	283				
4.5 ,, . . .	20	24.4	21.8	282	25	28.1	26.5	287	4	10.5	7.6	009	23	12.9	7.5	348	23	12.5	7.9	327	11	28.4	27.7	277				
5.4 ,, . . .	9	30.0	28.9	276	20	37.1	33.9	278	2	15.0	14.9	335	21	16.2	9.8	323	22	16.9	10.4	312	6	29.0	28.5	269				
6.0 ,, . . .	4	32.3	31.2	269	16	43.9	41.3	275					18	19.0	15.2	303	21	19.4	14.8	293	1	27.0	27.0	260				
7.2 ,, . . .	1	35.0	35.0	255	10	47.7	44.9	270					5	24.4	16.2	278	20	24.9	21.0	285								
9.0 ,, . . .																	16	32.0	26.6	285								

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

December 1956

Station	BHAGALPUR				BHUBANESHWAR												BHUJ						
	1430				0130				0730				1430				0130				0730		
Time in I.S.T.																							
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface . . .	31	2.7	2.3	306	31	2.4	1.3	307	31	2.9	2.3	006	31	4.8	2.5	025	31	0.7	0.3	086	31	0.5	0.3
0.15 a.g. . .	30	5.6	4.3	210	31	6.7	2.2	151	31	6.2	4.7	005	31	5.1	2.4	008	31	11.2	7.5	006	31	10.4	7.1
0.3 a.m.s.l. .	30	5.9	4.5	308	31	6.1	1.1	137	31	7.0	3.3	047	31	5.5	2.9	012	31	12.0	8.5	016	31	11.7	8.5
0.6 " . . .	30	6.2	4.3	302	31	6.2	1.6	027	31	7.3	3.8	042	31	5.3	2.4	021	31	11.3	7.9	029	31	13.6	8.8
0.9 " . . .	30	7.7	6.0	296	31	6.8	4.1	008	31	7.3	4.1	047	31	5.8	3.8	015	31	10.4	5.8	039	31	12.5	6.6
1.5 " . . .	31	13.2	10.4	294	31	8.8	6.8	335	31	7.2	5.9	009	31	7.3	5.6	337	31	9.3	2.7	318	31	10.5	4.8
2.1 " . . .	30	18.3	16.3	282	31	9.9	7.5	327	31	10.3	7.7	342	31	11.5	10.9	313	31	11.5	8.5	289	31	11.7	7.8
3.0 " . . .	30	25.4	24.0	284	29	12.8	11.5	306	30	12.2	10.6	310	31	13.7	11.7	313	30	17.3	13.1	275	31	17.0	12.1
4.5 " . . .	23	36.4	35.0	283	5	18.2	17.5	268	27	16.9	14.1	284	28	20.7	19.0	284	1	26.0	26.0	275	27	23.9	20.4
5.4 " . . .	17	39.4	38.9	280	1	15.0	15.0	266	22	20.9	18.9	283	27	25.1	22.9	283					23	27.7	23.5
6.0 " . . .	14	42.6	41.3	276					23	26.8	22.6	275	25	28.5	25.9	285					14	31.5	27.4
7.2 " . . .	7	45.1	42.1	271					4	29.0	16.1	289	23	37.6	35.2	280					6	33.3	31.0
9.0 " . . .									4	46.3	8.8	240	18	50.4	46.3	179							

Station.	BHUJ				BIKANER												CHIKALTHANA						
	1430				0130				0730				1430				0130				0730		
Time in I.S.T.																							
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface . . .	31	3.8	2.4	009	31	2.2	1.6	050	31	1.3	0.5	054	31	2.4	1.1	009	31	1.8	0.9	367	31	0.6	0.3
0.15 a.g. . .	31	6.5	4.1	005	31	13.1	9.2	069	31	11.2	6.9	097	31	6.1	2.2	369	31	9.2	6.4	067	31	7.7	6.7
0.3 a.m.s.l. .	31	6.5	4.4	005	31	12.0	8.8	060	31	9.3	5.2	071	31	5.8	2.4	359							
0.6 " . . .	31	6.8	4.1	006	31	10.1	6.2	069	31	10.4	4.2	058	31	6.7	1.7	349							
0.9 " . . .	31	7.7	3.8	354	31	8.4	0.8	051	31	8.9	2.7	031	31	7.0	1.8	015	31	9.9	6.0	080	31	10.6	8.5
1.5 " . . .	31	9.6	4.6	305	30	9.1	5.6	261	31	8.9	3.5	314	30	8.5	3.2	291	31	7.7	2.3	143	31	7.1	3.9
2.1 " . . .	31	12.3	8.4	290	30	11.8	8.8	276	31	10.8	6.1	307	30	10.1	5.9	268	31	8.3	2.1	206	30	8.6	1.4
3.0 " . . .	31	17.0	13.1	278	29	14.6	11.7	284	28	13.8	10.1	286	30	17.0	13.5	280	30	11.1	3.7	234	29	13.1	5.2
4.5 " . . .	30	25.5	22.5	276	11	21.5	18.1	277	24	23.4	20.6	277	26	27.4	24.2	281	6	21.5	18.3	288	28	17.8	13.7
5.4 " . . .	29	32.3	29.3	276	3	17.0	17.0	260	18	28.0	25.6	280	23	34.5	31.3	287	1	34.0	34.0	230	27	23.3	19.2
6.0 " . . .	29	36.6	33.3	279	1	31.0	31.0	250	9	31.3	29.0	280	18	35.4	31.8	285					25	26.6	22.4
7.2 " . . .	13	41.1	36.7	284					3	30.0	28.0	268	9	39.9	35.3	287					9	30.7	26.0
9.0 " . . .	4	42.3	40.7	290									1	50.0	50.0	250					1	33.0	33.0

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

December 1956

Station.	CHIKALTHANA				COCHIN												DARJEELING							
	1430				0130				0730				1430				0730				1430			
Time in I.S.T.																								
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	2.7	1.4	185	31	2.3	2.0	060	31	2.0	1.9	049	31	6.4	5.3	282	31	0.9	0.6	189	31	0.9	0.7	250
0.15 a. g. . .	31	5.9	2.5	175	31	6.9	5.5	102	31	8.4	7.7	075	31	4.6	4.0	294	31	4.0	1.0	148	16	3.7	3.5	231
0.3 a. m. s. s. . .					31	7.1	5.5	105	31	7.8	7.2	083	31	4.6	2.9	322								
0.6 „ . . .					30	7.2	5.8	106	31	6.2	5.3	085	31	4.6	3.5	034								
0.9 „ . . .	31	5.6	2.2	188	30	7.9	6.8	105	31	5.7	4.1	071	31	5.9	5.3	055								
1.5 „ . . .	31	6.3	1.8	178	30	5.9	4.2	064	31	6.0	3.5	062	31	7.6	6.3	080								
2.1 „ . . .	31	8.8	1.2	282	30	8.2	6.7	074	31	8.0	4.9	073	30	9.0	6.2	073								
3.0 „ . . .	28	11.7	4.5	295	25	9.0	6.3	085	30	9.1	5.9	075	28	9.3	7.2	071	30	8.3	3.7	287	15	7.7	6.3	299
4.5 „ . . .	23	17.1	13.1	295	13	11.7	6.3	061	28	12.5	10.8	063	27	12.5	10.0	062	25	27.6	26.3	277	7	25.7	24.8	280
5.4 „ . . .	22	23.8	19.0	288	8	11.9	9.6	045	26	12.8	10.0	059	27	12.9	10.7	060	15	30.8	29.3	280	6	39.0	38.7	280
6.0 „ . . .	20	27.1	24.5	293	6	10.1	7.1	059	25	12.5	8.6	063	27	12.4	9.4	064	13	32.4	31.7	275	4	43.7	43.7	275
7.2 „ . . .	8	27.6	24.0	292	1	9.0	9.0	170	18	10.6	3.6	043	27	12.4	4.9	051	4	34.5	29.5	258	1	41.0	41.0	275
9.0 „ . . .									16	11.3	7.1	227	22	11.8	7.0	232	1	39.0	39.0	285	1	15.0	51.0	270

Station	DUM DUM																GADAG											
	0130				0830*				1430				2030*				0130				0730							
Time in I. S. T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	0.9	0.7	022	31	3.4	2.3	355	31	2.5	1.4	330	31	1.4	5.0	350	31	8.1	7.2	107	31	7.5	6.6	120				
0.15 a. g. . .	31	9.3	4.1	360	31	7.7	4.3	067	31	6.4	4.3	338	27	9.6	5.1	326	31	16.5	15.7	107	31	14.6	13.6	117				
0.3 a. m. s. l. . .	31	8.2	3.6	184	31	7.2	4.8	002	31	6.7	4.8	335	27	9.2	5.6	329												
0.6 „ . . .	31	7.5	4.6	190	31	7.2	4.5	349	31	6.3	5.6	326	27	8.2	5.7	335												
0.9 „ . . .	31	8.6	6.1	334	31	7.8	5.3	337	31	10.8	6.3	338	27	8.9	7.1	330	30	16.7	15.8	103	31	17.5	16.7	109				
1.5 „ . . .	30	11.6	10.1	317	30	11.4	9.8	215	31	11.1	9.9	319	26	11.9	10.3	324	30	13.1	12.2	085	29	16.4	15.4	084				
2.1 „ . . .	28	14.3	13.2	309	29	14.3	12.6	307	31	15.0	12.6	300	26	14.3	13.3	313	30	11.1	8.6	073	28	13.4	11.8	082				
3.0 „ . . .	21	14.7	14.1	287	29	17.2	15.9	289	31	17.9	17.1	290	26	19.8	18.5	294	30	9.3	6.8	063	29	10.2	7.1	068				
4.5 „ . . .					29	27.3	26.5	276	25	28.7	28.0	280	25	28.4	27.2	279	16	10.8	5.5	336	26	11.7	5.4	017				
5.4 „ . . .					28	33.8	32.5	277	23	34.0	33.2	279	26	34.0	32.7	278	10	14.4	9.2	308	24	14.3	8.7	337				
6.0 „ . . .					28	38.7	37.0	272	21	37.2	35.8	275	26	38.2	36.9	273	8	14.1	12.0	298	24	15.3	11.3	323				
7.2 „ . . .					27	50.3	48.1	269	16	41.0	38.2	274	26	48.5	46.5	272	2	29.0	28.8	258	23	18.9	14.3	299				
9.0 „ . . .					25	65.3	61.4	263	3	54.3	54.2	264	25	69.7	66.0	265					12	29.5	23.1	265				

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

December 1956

Station	GADAG				GAUHATI										GAYA													
	1430				0130				0830*				1430				2030*				0130							
Time in I. S. T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	8.0	7.5	096	31	1.3	0.7	073	31	1.7	1.5	070	31	3.7	2.9	036	31	1.5	0.5	107	31	0.6	0.3	1				
0.15 a. g. . .	31	10.3	9.7	093	31	3.7	2.4	098	31	5.2	4.2	076	31	4.5	2.6	045	30	6.0	4.7	084	31	6.8	2.9	3				
0.3 a. m. s. l. . .					31	4.4	2.2	090	31	5.9	4.9	076	31	4.8	2.9	046	30	6.2	4.8	084	31	7.1	3.4	3				
0.6 „ . . .					30	5.9	2.6	090	31	7.3	6.0	077	31	4.5	2.2	065	30	6.6	4.1	082	31	8.1	4.9	3				
0.9 „ . . .	31	10.6	10.1	097	30	6.3	2.1	066	31	8.7	6.0	080	31	5.2	1.0	113	30	6.9	2.7	082	31	13.2	11.7	3				
1.5 „ . . .	29	11.1	9.9	092	29	7.9	0.2	295	31	9.9	3.4	099	31	7.6	4.0	229	30	7.5	1.9	253	14	19.5	19.2	3				
2.1 „ . . .	26	10.5	9.5	082	27	10.8	4.4	257	31	11.4	1.8	201	28	10.1	7.0	232	30	10.2	6.0	261								
3.0 „ . . .	25	10.0	7.1	060	16	13.9	11.7	250	31	16.5	13.2	267	25	20.7	19.1	263	30	18.1	16.6	266								
4.5 „ . . .	21	10.8	5.7	020	1	28.0	28.0	245	29	37.7	36.8	265	21	36.7	36.0	268	30	36.4	35.7	266								
5.4 „ . . .	21	13.4	7.5	349					28	48.0	46.6	265	14	39.9	39.2	261	30	45.8	45.0	266								
6.0 „ . . .	21	15.3	9.1	327					26	53.0	51.3	263	10	42.2	41.5	268	30	50.8	49.7	267								
7.2 „ . . .	17	15.9	9.2	292					26	63.0	60.7	261	2	44.5	43.4	272	29	60.5	59.3	265								
9.0 „ . . .	14	25.1	19.0	286					19	77.0	72.8	260					26	80.9	78.0	260								

Station	GAYA				GOPALPUR										GORAKHPUR												
	0730				1430				0130				0730				1430				0730						
Time in I. S. T.																											
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface . . .	31	1.7	1.2	216	31	4.1	3.2	305	31	5.8	5.5	324	31	6.6	6.4	328	31	5.6	4.8	105	31	0.9	0.3				
0.15 a. g. . .	29	7.2	4.0	237	31	6.0	4.8	312	31	6.0	3.9	358	31	9.8	9.3	017	31	8.4	7.2	100	31	7.9	3.3				
0.3 a. m. s. l. . .	29	7.2	3.3	252	31	6.0	4.9	311	31	4.9	2.6	060	31	6.8	5.0	040	31	7.2	5.9	088	31	8.3	3.5				
0.6 „ . . .	29	7.3	4.0	301	31	6.5	5.4	300	31	5.8	3.7	067	31	6.8	4.9	053	31	5.8	4.1	027	31	8.2	4.1				
0.9 „ . . .	29	7.7	5.6	298	30	7.5	6.5	300	31	6.6	4.6	041	31	7.4	5.5	050	31	6.7	5.5	007	31	8.1	5.2				
1.5 „ . . .	29	12.6	10.4	292	30	11.9	10.6	292	31	8.5	6.9	012	31	8.7	6.3	038	31	8.0	5.9	005	30	10.9	6.3				
2.1 „ . . .	29	16.9	14.9	293	29	18.4	17.0	290	30	11.0	8.0	348	30	10.7	8.1	005	30	10.3	7.8	347	28	13.7	9.3				
3.0 „ . . .	29	21.6	20.4	293	28	22.3	21.6	287	25	10.5	8.8	311	30	11.2	8.8	329	30	11.3	9.2	328	23	19.3	17.6				
4.5 „ . . .	14	24.8	23.6	280	24	32.8	30.9	285	3	15.7	14.4	291	26	13.5	11.7	286	30	16.0	13.7	290	10	25.1	22.9				
5.4 „ . . .	6	26.8	25.6	369	18	38.2	37.0	282					25	19.7	17.0	283	30	20.2	18.2	285	5	28.0	26.3				
6.0 „ . . .	3	27.3	27.1	262	12	45.6	44.4	280					25	25.0	20.8	281	28	22.7	20.0	281	4	36.0	34.7				
7.2 „ . . .	1	70.0	70.0	270	2	53.5	53.6	297					8	30.4	26.1	277	19	32.7	29.5	272	2	47.5	47.2				
9.0 „ . . .													4	41.5	35.9	267	7	42.6	38.2	269							

TABLE IV.—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

December 1956

Station	GORAKHPUR				GWALIOR								IMPHAL															
	1430				0130				0730				1430				0730				1430							
Time in I.S.T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	3.1	1.1	248	31	1.2	0.1	062	31	0.8	0.4	264	31	2.7	2.0	349	31	0.9	0.5	151	31	4.1	3.4	201				
0.15 a.g. . .	31	6.2	2.2	263	31	7.0	2.7	056	31	7.0	1.0	353	31	6.2	4.0	348	30	1.7	0.2	150	31	4.1	3.3	204				
0.3 a.m.s.l. .	31	6.4	2.3	265	31	5.7	2.1	052	31	5.3	0.8	283	31	5.4	3.6	348												
0.6 „ . . .	31	6.7	3.1	284	31	6.8	1.5	019	31	7.7	2.8	348	31	6.3	3.3	336												
0.9 „ . . .	31	8.0	4.9	295	31	7.5	3.5	310	31	8.1	4.3	325	31	6.5	3.9	315	30	1.6	1.3	151	31	3.8	3.1	204				
1.5 „ . . .	30	11.3	8.2	293	31	10.0	8.1	290	31	10.0	7.7	307	31	8.9	6.2	291	30	4.5	0.8	150	31	6.1	5.4	238				
2.1 „ . . .	29	16.0	12.5	294	31	13.5	11.3	282	31	13.1	10.5	290	31	13.3	11.0	285	30	9.0	4.9	229	30	8.8	7.0	259				
3.0 „ . . .	29	22.2	19.7	290	30	20.1	16.6	281	31	19.7	16.6	279	31	20.8	18.7	279	29	16.4	14.4	268	30	18.2	17.1	267				
4.5 „ . . .	25	31.4	30.2	287	2	22.0	21.9	264	28	32.0	29.0	279	24	33.6	31.7	282	15	27.7	25.9	265	18	33.0	32.1	266				
5.4 „ . . .	21	35.2	33.9	282					25	39.1	35.7	277	24	41.3	38.7	283	5	31.0	27.5	266	9	32.6	31.3	270				
6.0 „ . . .	17	40.3	38.9	282					18	42.4	39.4	272	22	45.2	42.3	284	4	32.7	30.4	271	3	31.0	28.5	273				
7.2 „ . . .	5	50.2	48.0	279					11	51.9	47.9	276	10	52.2	47.8	276	1	32.0	32.0	265	2	40.5	38.3	283				
9.0 „ . . .	1	71.0	71.0	270					6	60.5	59.3	285	7	53.4	48.7	265												

Station	JABALPUR												JAGDALPUR															
	0130				0730				1430				0130				0730				1430							
Time in I.S.T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	1.9	1.4	139	31	2.1	1.6	127	31	3.1	1.1	315	12	1.6	1.5	045	13	1.1	0.8	065	12	2.4	1.5	025				
0.15 a.g. . .	31	10.1	4.7	123	30	9.6	4.4	141	31	5.5	2.1	309	12	9.5	8.1	053	13	7.0	5.9	060	12	4.1	3.5	065				
0.3 a.m.s.l. .																												
0.6 „ . . .	31	10.5	4.6	118	30	10.7	4.2	133	31	5.3	2.1	320	12	5.3	4.0	041	13	2.9	2.0	070	12	3.1	2.0	013				
0.9 „ . . .	31	10.1	0.8	145	30	10.2	0.9	068	31	5.5	1.5	318	12	9.4	8.6	060	13	7.9	6.3	075	12	4.1	3.5	015				
1.5 „ . . .	31	10.8	6.5	273	30	10.5	5.6	305	30	8.2	4.0	266	12	5.6	3.4	038	13	8.1	5.5	050	12	5.5	3.9	011				
2.1 „ . . .	31	13.4	10.5	285	30	12.8	8.5	291	30	12.4	9.2	282	11	10.5	5.3	027	13	12.5	7.1	017	11	9.1	5.1	030				
3.0 „ . . .	31	18.3	16.0	287	30	17.6	15.0	288	27	18.0	15.3	284	11	11.2	6.3	352	13	11.8	6.6	005	9	11.0	6.2	253				
4.5 „ . . .	9	21.9	18.8	276	28	27.0	23.6	289	27	28.7	25.3	283	6	12.5	7.5	284	13	12.8	8.8	285	9	13.4	9.0	290				
5.4 „ . . .	2	23.5	23.0	246	16	32.3	28.0	282	26	32.1	30.5	279	5	18.4	13.1	278	12	18.9	14.3	278	9	20.4	14.3	280				
6.0 „ . . .	2	28.0	27.9	243	11	30.5	27.7	276	23	35.7	26.7	276	3	17.0	16.2	269	12	21.1	17.5	265	7	18.3	13.9	259				
7.2 „ . . .					3	36.0	35.6	289	14	41.0	41.0	274	1	34.0	34.0	260	5	28.2	24.8	255	4	28.3	22.1	248				
9.0 „ . . .									3	54.0	53.2	245					3	35.0	36.6	238	2	31.0	30.9	239				

TABLE IV.—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

December 1956

Station	JAIPUR								JAMSHEDPUR								JHARSUGUDA						
	0730				1430				0730				1430				0130			0730			
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface . . .	31	2.5	1.6	056	31	2.4	0.2	292	31	2.4	2.1	290	31	3.2	2.6	310	31	3.4	2.9	040	31	3.8	3.5
0.15 a. g. . .	31	8.9	3.9	083	31	5.7	0.3	279	31	6.1	5.5	289	31	4.3	3.6	310	31	8.5	4.6	059	31	8.9	8.1
0.3 a. m. s. l. . .									31	6.1	4.7	300	31	4.4	3.9	313	31	7.6	5.5	038	31	7.6	7.0
0.6 „ . . .	31	10.0	2.9	295	31	6.1	0.7	253	31	7.4	3.0	335	31	5.5	4.0	340	31	8.5	2.7	035	31	8.5	4.2
0.9 „ . . .	31	8.9	0.7	303	31	6.1	0.6	295	31	8.3	4.0	323	31	6.5	4.7	304	31	7.1	2.5	348	31	7.9	2.4
1.5 „ . . .	31	9.2	6.3	301	31	8.8	4.8	283	31	10.9	8.1	308	31	10.9	8.7	310	30	7.5	5.8	309	31	8.1	4.1
2.1 „ . . .	31	11.6	9.0	298	31	12.3	8.0	280	29	15.1	13.0	304	31	15.4	13.9	305	30	11.6	9.6	316	31	12.6	10.2
3.0 „ . . .	30	16.6	13.5	283	29	19.4	15.2	285	29	20.0	18.3	256	31	20.3	18.9	293	26	17.9	16.1	306	30	16.1	14.5
4.5 „ . . .	14	28.3	24.9	265	22	30.1	26.0	268	21	26.9	25.8	280	28	29.4	27.7	280	1	11.0	11.0	270	21	23.4	21.5
5.4 „ . . .	7	32.6	23.5	259	14	34.1	31.4	285	12	27.8	27.2	271	22	37.6	35.6	281					12	23.7	22.2
6.0 „ . . .	1	33.0	33.0	250	8	35.4	32.3	277	6	24.9	23.4	272	15	38.6	35.8	277					5	21.4	21.3
7.2 „ . . .					3	39.3	34.4	262	1	23.0	23.0	256	6	45.8	37.0	269					3	29.0	28.7
9.0 „ . . .													3	54.6	54.0	254							

Station	JHARSUGUDA				JODHPUR												MADRAS						
	1430				0130				0830*				1430				2030*				0130		
Time in I. S. T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v
Surface . . .	31	2.1	1.2	288	31	6.1	5.5	028	31	5.6	4.5	140	31	4.5	1.4	315	26	4.2	2.2	007	31	4.4	3.8
0.15 a. g. . .	31	4.0	1.7	312	31	12.9	7.0	056	31	6.7	4.4	135	29	4.8	0.9	307	25	5.5	2.7	013	29	11.8	10.8
0.3 a. m. s. l. . .	31	3.6	1.8	312	31	11.3	7.3	043	31	6.6	4.8	041	29	5.4	1.1	306	25	5.1	2.6	011	29	12.3	11.4
0.6 „ . . .	31	4.0	2.2	311	31	11.3	4.8	075	31	7.8	3.1	096	29	6.2	0.6	308	25	6.5	2.9	028	29	13.2	12.4
0.9 „ . . .	31	4.2	2.3	307	31	9.4	1.5	113	31	8.9	0.9	060	29	6.2	0.6	267	25	8.1	3.8	044	30	13.4	12.7
1.5 „ . . .	31	8.7	5.9	310	31	9.3	4.1	239	31	11.2	3.2	318	31	7.7	3.7	265	25	8.2	1.6	031	29	14.7	13.6
2.1 „ . . .	31	12.0	9.4	316	29	11.9	7.8	265	30	12.1	6.8	292	31	12.3	8.9	269	25	11.2	4.5	074	27	13.9	12.7
3.0 „ . . .	29	17.1	14.2	303	28	14.9	12.2	278	30	17.9	14.7	280	30	20.1	17.2	275	24	17.5	15.1	287	22	10.0	8.3
4.5 „ . . .	27	24.7	22.3	287	1	20.0	20.0	240	30	30.9	27.8	283	26	31.3	28.8	281	25	32.3	27.8	285	5	8.8	5.9
5.4 „ . . .	21	29.2	26.7	284					30	39.7	36.8	283	24	36.0	32.4	280	25	40.2	36.0	282	4	10.7	5.4
6.0 „ . . .	18	32.1	28.9	278					28	44.3	40.4	282	22	40.3	36.3	277	25	44.7	39.6	279	3	10.0	3.8
7.2 „ . . .	10	42.1	36.1	273					26	53.5	48.2	280	16	48.4	43.0	280	24	57.2	52.0	284	1	9.0	9.0
9.0 „ . . .	1	66.0	66.0	255					25	61.9	55.6	281	5	55.4	48.5	273	22	66.8	60.5	285			

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

December 1956

Station	MADRAS												MANGLORE											
	0830*				1430				2030*				0130				0730				1430			
Time in I.S.T.																								
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	5.6	5.1	009	31	10.1	9.6	040	31	5.6	5.2	017	30	6.9	6.6	085	31	10.5	10.4	093	31	6.4	3.7	273
0.15 a. g. . .	31	12.5	11.6	029	31	12.3	11.8	043	30	12.2	11.7	040	30	7.7	6.1	050	31	20.6	20.4	095	31	7.0	3.7	273
0.3 a. m. s. l. . .	31	13.1	12.4	035	31	13.0	12.5	044	30	13.0	12.5	043	30	7.3	5.1	041	31	21.2	20.7	101	31	5.5	0.9	306
0.6 „ . . .	31	14.1	13.6	051	31	13.5	12.9	046	30	14.3	13.6	047	30	7.8	6.1	065	31	14.0	13.5	103	31	4.7	3.9	072
0.9 „ . . .	31	15.3	14.7	064	31	13.6	12.6	051	30	15.4	13.7	052	30	9.1	8.3	088	31	11.9	9.2	107	31	7.3	6.8	075
1.5 „ . . .	31	16.2	15.4	071	27	13.9	12.6	061	30	14.8	13.1	059	30	11.7	11.3	102	31	9.0	7.7	096	31	11.5	11.1	082
2.1 „ . . .	31	15.5	14.8	073	21	13.2	11.5	060	29	14.2	12.4	065	30	10.3	9.4	098	31	9.7	7.9	078	30	11.7	10.7	078
3.0 „ . . .	31	12.2	10.7	073	17	11.1	9.2	070	30	11.8	10.4	070	29	8.5	6.7	067	31	10.0	7.7	076	29	10.3	7.8	073
4.5 „ . . .	30	11.0	9.0	057	14	11.1	9.1	046	29	10.7	8.9	050	16	8.9	4.1	049	30	11.5	8.0	042	29	11.0	7.3	050
5.4 „ . . .	29	11.9	8.4	013	10	14.0	12.3	015	28	11.0	8.6	034	13	8.8	3.0	345	29	12.5	6.5	028	29	11.5	6.6	030
6.0 „ . . .	29	12.4	7.5	029	10	15.2	12.3	005	27	13.2	8.5	023	9	12.2	6.2	314	29	12.8	4.9	002	29	11.6	6.5	010
7.2 „ . . .	28	13.9	5.8	334	9	16.5	10.9	343	26	13.3	6.1	346	3	12.3	11.4	260	25	15.6	7.1	273	29	14.5	5.8	306
9.0 „ . . .	24	18.7	13.7	225	7	21.4	14.6	272	22	19.0	14.7	264					20	20.6	14.3	253	29	19.2	13.2	258

Station.	MASULIPATNAM												MINICOY											
	0130				0730				1430				0130				0730				1430			
Time in I.S.T.																								
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	4.3	3.6	040	31	6.0	5.6	023	31	5.6	5.2	105	31	3.8	3.2	043	31	3.7	3.0	035	31	4.6	4.0	028
0.15 a. g. . .	31	8.5	7.9	082	31	9.6	8.9	054	31	6.7	6.3	096	31	8.6	6.9	037	31	7.5	6.5	031	31	7.2	6.7	027
0.3 a. m. s. l. . .	31	9.6	9.1	088	31	10.0	9.4	077	31	7.5	6.7	088	31	8.7	7.2	036	31	8.2	7.3	040	31	8.0	7.5	030
0.6 „ . . .	31	10.5	9.9	083	31	10.4	9.3	088	31	8.4	7.2	060	31	8.8	7.5	041	31	8.9	7.8	046	31	8.7	8.2	038
0.9 „ . . .	31	10.1	9.2	068	31	10.2	9.5	078	31	8.8	7.5	059	31	9.7	8.1	150	31	10.3	9.3	059	31	8.8	8.1	048
1.5 „ . . .	31	10.5	9.1	062	31	10.6	9.4	069	31	10.0	7.9	055	31	11.3	9.8	074	31	11.8	10.8	079	31	9.5	8.1	057
2.1 „ . . .	31	9.7	8.1	061	31	10.7	8.9	066	30	9.6	7.9	054	30	11.8	10.3	080	31	9.9	8.8	080	27	9.4	6.6	071
3.0 „ . . .	28	8.2	5.3	019	30	9.3	6.5	044	30	7.9	5.6	045	29	10.6	8.7	081	28	8.7	6.9	092	25	8.8	6.8	078
4.5 „ . . .	9	11.1	6.1	3.8	25	10.2	6.9	342	28	11.5	6.5	345	18	11.7	9.1	087	26	11.8	9.6	079	21	12.1	9.5	083
5.4 „ . . .	5	10.6	3.9	260	25	13.2	9.5	314	28	13.0	9.5	318	10	12.1	8.3	055	25	14.9	12.1	077	19	13.4	10.6	077
6.0 „ . . .	4	10.3	4.6	298	24	14.8	10.4	292	28	16.2	11.4	302	8	13.4	6.6	058	21	12.2	9.1	075	17	15.2	12.4	072
7.2 „ . . .					13	20.5	14.4	292	25	21.1	15.9	288	5	7.6	5.6	043	17	10.5	4.0	057	16	14.9	10.6	072
9.0 „ . . .					3	24.7	24.4	253	15	31.8	24.0	275	1	11.0	11.0	110	14	11.9	6.8	198	14	11.0	4.4	223

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

December 1956

Station	MOHANBARI												MUSSOORIE								NAGPUR			
	0130				0730				1430				0730				1430				0130			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	
Ht. in Km.																								
Surface	31	0.4	0.2	235	31	0.5	0.5	045	31	0.8	0.5	062	31	2.5	1.3	360	31	3.3	2.8	214	31	2.8	2.1	
0.15 a. g.	31	6.0	4.1	057	31	7.0	6.5	046	31	3.5	3.0	055	30	7.1	2.5	006	29	5.1	3.4	198	30	9.5	5.8	
0.3 a. m. s. l.	31	5.5	4.1	050	31	7.1	6.7	044	31	3.9	3.4	055												
0.6 "	31	5.0	4.1	042	31	7.7	7.3	043	31	4.8	4.1	061									30	9.6	5.1	
0.9 "	31	5.3	4.0	041	31	7.1	6.7	056	31	4.7	3.9	170									30	7.1	3.1	
1.5 "	30	4.6	0.8	098	31	5.4	3.2	083	31	4.7	1.9	165									30	7.6	2.0	
2.1 "	25	4.6	1.7	193	30	5.9	2.6	195	31	7.6	5.5	199	30	6.0	2.4	004	29	5.7	4.6	291	29	9.7	5.5	
3.0 "	21	7.0	5.1	226	24	7.7	5.2	217	30	9.3	7.4	215	30	10.4	3.0	270	26	10.7	3.2	289	28	12.5	8.6	
4.5 "					16	26.3	24.0	260	16	30.3	29.1	253	25	18.0	12.6	288	21	17.0	8.4	282	8	21.8	19.0	
5.4 "					12	34.4	31.8	263	15	38.1	37.1	255	19	25.6	22.1	280	16	24.4	19.3	286	2	25.0	22.1	
6.0 "					10	37.8	34.9	263	14	40.0	38.6	261	14	31.4	28.6	286	14	32.6	28.4	288				
7.2 "					4	44.3	39.0	263	7	55.9	53.6	263	5	32.8	31.8	274	11	44.5	39.6	286	6	51.8	46.5	288
9.0 "													2	45.0	44.9	255								

Station.	NAGPUR												NEW DELHI															
	0830*				1430				2030*				0130				0830*				1430							
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.																												
Surface	31	3.6	2.8	031	31	3.7	0.5	330	24	3.3	2.4	071	31	2.8	1.5	319	31	5.0	2.4	315	31	6.7	3.1					
0.15 a. g.	31	4.4	3.4	044	31	4.2	0.7	354	23	4.1	2.8	078	31	10.5	4.1	349	31	6.1	2.5	303	31	8.3	4.1					
0.3 a. m. s. l.													31	8.9	4.4	359	31	6.0	2.9	299	31	8.4	4.1					
0.6 "	31	5.1	3.1	072	31	4.3	0.4	075	23	4.7	2.7	082	31	9.7	2.8	324	31	7.7	3.5	303	31	7.9	3.1					
0.9 "	31	6.6	2.4	120	31	4.2	0.8	215	23	6.2	1.9	090	31	9.2	4.6	298	31	9.5	4.5	302	31	8.7	3.1					
1.5 "	31	7.5	1.4	221	31	6.5	3.0	265	23	8.3	3.1	313	31	9.8	5.9	281	31	10.5	6.4	296	31	10.9	7.0					
2.1 "	31	9.2	4.4	290	31	8.7	5.5	283	23	10.3	6.1	298	30	11.7	9.3	285	31	11.7	7.8	297	30	12.6	9.0					
3.0 "	31	12.2	8.8	293	30	13.2	10.1	288	24	13.0	9.4	286	26	14.1	11.3	282	31	14.2	11.8	281	29	16.9	14.0					
4.5 "	28	20.4	16.7	278	27	23.2	19.6	287	24	20.5	17.5	282	1	14.0	11.0	230	31	25.2	22.1	274	28	27.5	24.0					
5.4 "	27	25.2	21.6	275	25	26.9	23.0	282	23	25.0	21.3	280	1	31.0	31.0	215	30	34.3	32.0	272	27	35.3	32.0					
6.0 "	27	29.2	25.8	273	24	30.8	27.1	281	23	27.9	24.1	275	1	31.0	31.0	250	30	40.8	38.3	273	27	40.8	38.0					
7.2 "	24	36.2	32.6	265	23	41.1	37.8	280	23	34.4	31.1	270					28	51.3	48.5	273	2	51.6	47.0					
9.0 "	24	48.6	42.6	268	21	51.5	46.0	279	22	48.5	43.3	264					26	65.3	61.2	275	18	67.6	63.0					

TABLE IV - MONTHLY WIND DIRECTION AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

December 1955

Station	NEW DELHI				POONA								PORT BLAIR															
	2030*				0130				0730				1430				0130				0730							
Time in I.S.T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	28	4.6	1.6	313	31	1.7	0.8	222	31	0.8	0.3	160	31	2.6	2.1	088	31	7.5	7.2	055	31	6.4	6.1	050				
15 a. g.	28	6.1	1.9	320	31	5.1	0.8	087	31	5.1	4.6	092	31	5.4	3.5	115	31	13.9	13.4	056	31	12.0	11.4	051				
3 a. m.s. l.	28	5.7	1.9	328													31	13.8	13.3	057	31	12.8	12.2	053				
6	28	7.5	2.7	316	31	3.2	2.2	220	31	2.0	0.8	191	31	3.7	2.6	112	31	14.4	13.8	063	31	14.3	13.7	062				
9	28	8.0	3.5	305	31	8.4	3.7	079	31	9.5	8.6	108	31	6.0	4.0	115	30	13.6	13.1	073	30	15.1	14.0	072				
1.5	28	9.5	5.8	290	31	10.1	7.5	108	31	11.6	9.9	115	31	6.2	3.7	130	25	11.9	9.7	080	24	12.4	11.1	082				
2.1	28	10.9	7.8	284	30	10.0	7.2	110	31	10.3	4.8	109	29	7.0	2.5	078	19	7.6	5.4	073	21	11.3	9.9	086				
3.0	28	14.5	12.6	279	29	9.4	2.1	330	31	11.2	3.0	352	26	9.7	2.6	008	19	4.6	3.0	069	19	8.5	6.0	075				
4.5	28	27.0	24.5	278	27	17.5	12.4	279	27	15.0	9.0	296	28	16.1	10.1	312					15	9.3	5.1	060				
5.4	27	31.2	32.4	274	7	18.9	15.7	282	26	19.5	14.6	287	22	18.0	14.8	301					12	10.2	5.1	068				
6.0	27	40.6	37.7	272	4	22.3	19.8	286	24	23.0	19.3	282	21	19.4	17.2	297					11	9.0	3.9	155				
7.2	26	49.0	45.3	272					16	23.9	26.3	277	17	26.8	25.1	287					9	10.6	5.6	208				
8.0	21	61.0	57.1	265					4	30.0	33.5	284	8	30.4	35.2	282					3	9.3	7.3	249				

Station	PORT BLAIR				RAIPUR								SANTACRUZ															
	1430				2030*				0130				0730				1430				0130							
Time in I.S.T.																												
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface	31	8.1	7.6	052	24	11.8	11.2	053	31	2.5	0.8	257	31	1.0	0.3	085	31	1.1	0.7	009	31	1.3	1.0	020				
15 a. g.	31	14.5	13.8	053	24	12.5	12.0	056	31	9.7	5.3	064	31	7.5	4.6	069	31	3.7	1.0	389	31	7.5	6.3	031				
3 a. m.s. l.	31	14.9	14.2	054	24	12.6	12.1	057													31	9.0	7.6	027				
1.6	31	14.5	13.8	059	24	13.7	13.2	064	31	9.1	5.0	061	31	9.0	5.1	085	31	3.9	1.1	311	31	8.9	6.8	031				
1.9	30	14.5	13.4	066	24	15.0	14.1	069	31	6.5	2.0	086	31	7.9	3.7	087	31	3.9	0.7	316	31	7.2	3.9	044				
1.5	27	13.0	11.4	068	24	13.6	11.4	077	31	7.0	2.3	300	31	7.4	2.3	340	31	6.4	2.8	316	31	8.8	4.7	142				
1	16	10.9	8.0	070	24	13.4	10.6	078	31	10.5	6.8	303	31	10.7	6.6	317	31	9.2	6.2	307	31	10.5	3.7	135				
2.0	9	9.6	7.1	071	24	9.7	7.6	074	31	14.9	12.6	288	30	14.0	11.2	307	31	12.9	10.8	293	29	10.1	1.2	324				
2.5	8	16.3	15.7	189	23	11.9	9.1	084	6	21.5	19.8	285	28	21.2	18.1	284	31	24.0	21.0	282	5	18.2	15.0	263				
3.4	8	13.7	12.6	199	21	13.1	9.9	081	1	23.0	23.0	245	23	26.8	22.6	286	30	27.8	25.2	278	1	23.0	23.0	249				
4.0	8	15.0	14.4	113	19	13.3	9.3	077					20	28.6	24.7	281	30	31.9	28.5	276								
5.2	8	10.5	10.3	194	17	12.4	4.7	060					3	35.7	33.1	267	24	30.8	34.6	271								
6.0	2	8.5	8.5	185	11	16.6	4.2	237					1	43.0	43.0	280	13	33.5	47.3	268								

TABLE IV.—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds up to 9.0 Km. above mean sea level

December 1956

Station.	SANTACRUZ												TEZPUR											
	0830*				1430				2030*				0130				0730				1430			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	5.1	3.7	067	31	6.2	5.0	301	31	8.1	7.5	346	31	0.9	0.8	063	31	2.3	2.1	075	31	4.0	3.5	
0.15 a. g. . .	31	12.0	8.9	072	31	5.4	3.0	301	31	16.1	15.1	349	30	9.5	9.1	077	31	8.4	7.7	075	31	7.1	6.3	
0.3 a. m.s.l. . .	31	11.3	8.7	078	31	4.4	1.7	347	31	14.7	13.2	355	30	9.2	8.8	082	31	9.1	8.6	080	31	7.3	6.5	
0.6 " . . .	31	9.9	6.9	094	31	4.0	1.5	056	31	11.7	7.8	008	30	6.5	6.1	088	30	8.5	7.9	084	31	6.8	6.0	
0.9 " . . .	31	7.8	4.1	132	31	4.9	1.4	073	31	7.6	3.5	068	30	5.5	3.6	102	30	7.1	6.4	084	31	6.0	4.8	
1.5 " . . .	31	9.3	4.0	146	31	8.7	2.4	125	31	10.0	5.2	102	28	7.1	2.5	097	29	8.5	6.1	085	31	7.5	3.2	
2.1 " . . .	31	11.4	3.3	164	31	11.1	2.1	125	31	11.9	5.3	109	27	7.5	1.4	112	28	9.2	3.1	107	31	9.6	4.4	
3.0 " . . .	31	12.1	2.1	305	31	10.1	2.3	314	31	10.6	0.4	043	22	11.8	6.8	256	24	10.5	2.9	245	31	14.3	12.4	
4.5 " . . .	31	16.8	10.1	295	31	17.3	11.3	295	30	16.9	10.4	297					17	25.8	23.2	264	27	3.58	35.3	
5.4 " . . .	31	21.6	16.0	289	29	21.8	17.3	295	29	21.7	16.3	293					16	37.3	30.6	267	26	4.35	43.3	
6.0 " . . .	31	2.50	20.2	285	29	25.1	21.0	290	27	25.9	21.0	293					13	42.3	33.1	264	26	50.2	49.1	
7.2 " . . .	31	34.9	30.3	281	28	31.1	27.1	285	27	33.9	29.9	283					3	40.3	33.6	272	21	58.8	57.6	
9.0 " . . .	26	44.7	38.7	278	22	39.3	33.7	285	27	47.0	41.9	278					1	40.0	40.0	285	12	66.7	62.6	

Station.	TIRUCHIRAPALLI												TRIVANDRUM											
	0130				0730				1430				0130				0830*				1430			
Time in I.S.T.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Ht. in Km.	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D	n	V	v	D
Surface . . .	31	5.5	4.8	031	31	4.3	3.9	011	31	8.4	8.1	049	31	2.5	1.4	045	16	4.0	1.6	008	31	4.1	3.3	
0.15 a. g. . .	27	17.1	16.9	039	25	15.2	14.9	017	25	11.3	10.9	048	30	5.1	0.7	144	16	4.9	1.6	344	31	7.2	5.3	
0.3 a. m.s.l. . .	27	19.2	18.8	042	25	17.0	16.7	023	25	11.9	11.6	048	30	5.1	1.4	179	16	5.3	1.9	351	31	7.1	5.3	
0.6 " . . .	26	20.2	19.9	047	25	17.8	17.4	040	25	13.1	12.8	047	30	4.8	1.6	115	16	5.9	3.1	028	31	4.6	1.3	
0.9 " . . .	26	18.8	18.4	049	25	16.4	16.0	045	25	14.6	14.1	047	31	5.6	4.6	070	16	6.3	5.0	055	31	7.4	6.3	
1.5 " . . .	26	15.7	14.3	053	24	15.2	14.0	057	25	14.6	14.1	054	31	9.1	7.4	066	16	7.4	5.8	060	31	11.2	10.3	
2.1 " . . .	23	12.9	10.7	057	22	13.5	11.1	063	18	13.8	12.8	065	28	8.7	6.1	058	16	8.9	5.9	087	31	9.3	8.3	
3.0 " . . .	19	10.2	8.1	070	19	10.0	7.8	066	13	11.1	8.8	066	24	8.6	4.7	068	16	10.7	9.6	087	30	9.7	6.3	
4.5 " . . .	14	13.0	11.7	060	17	12.5	11.4	053	7	10.6	9.1	039	12	14.0	10.1	060	16	15.6	15.0	068	26	14.2	10.3	
5.4 " . . .	7	17.3	16.6	058	16	14.3	13.1	056	6	11.5	9.3	044	5	12.6	12.0	051	16	18.8	18.0	060	22	15.4	12.3	
6.0 " . . .	3	16.3	14.3	059	16	13.8	11.9	049	5	10.0	7.8	044	2	3.5	1.3	060	15	19.6	15.5	061	21	13.2	11.3	
7.2 " . . .	2	20.5	13.9	033	13	11.5	6.0	040	2	8.0	2.7	024					15	13.2	4.9	065	16	11.1	4.3	
9.0 " . . .					6	16.2	12.8	258	2	14.5	14.5	249					13	12.4	4.8	176	13	13.6	9.3	

TABLE IV—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.

Winds upto 9.0 Km. above mean sea level

December 1956

Station	VISAKHAPATNAM			
	1430			
Time in I.S.T.				
Ht. in Km.	n	V	v	D
Surface	31	9.6	9.2	101
0.15 a.g.	31	9.2	8.7	093
0.3 a. m. s. l.	31	7.9	7.2	081
0.6 "	31	6.3	5.6	046
0.9 "	31	6.4	5.7	031
1.5 "	31	8.5	7.2	025
2.1 "	30	10.0	7.1	011
3.0 "	29	9.1	6.9	339
4.5 "	27	13.1	10.4	307
5.4 "	28	17.2	14.6	292
6.0 "	28	21.9	17.5	285
7.2 "	26	28.7	24.6	282
9.0 "	26	40.1	34.9	274

TABLE V—MONTHLY MEAN DIRECTIONS AND VELOCITIES OF UPPER WINDS.
Winds above 9.0 km. above mean sea level

December 1956

Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v	D	Ht. in Km.	n	V	v						
	JODHPUR					MASULIPATNAM					NEW DELHI					SANTACRUZ					UDAIPUR			
	2030 hrs.*					0730 hrs.					1430 hrs.					1430 hrs.					1430 hrs.			
10.5	20	84.6	76.4	280	10.5	1	10.0	10.0	255	10.5	13	75.4	69.9	287	10.5	19	50.3	43.6	280	10.5	1	54.0	54.0	
12.0	15	93.9	86.9	276		1430 hrs.				12.0	7	88.7	80.3	287	12.0	6	44.2	42.0	287		VENGURLA			
14.1	4	93.5	86.2	287	10.5	6	42.2	37.2	280	14.1	2	76.5	69.8	265	14.1	4	27.0	25.6	292		1430 hrs.			
	MADRAS					MINICOY					2030 hrs.*					2030 hrs.*					10.5 4 40.4 31.0			
	0830 hrs.*					0730 hrs.				10.5	19	72.8	68.4	262	10.5	22	56.7	50.1	280		VERAVAL			
10.5	20	24.3	20.6	232	10.5	3	17.7	16.6	192	12.0	15	82.3	76.6	267	12.0	20	64.5	58.0	270		0730 hrs.			
12.0	18	31.6	23.9	224		1430 hrs.					POONA				14.1	10	49.0	47.6	276	10.5	4	55.3	53.3	
14.1	13	28.2	20.8	270	10.5	1	24.0	24.0	140		0730 hrs.					TEZPUR					1430 hrs.			
16.2	6	24.3	15.7	226	12.0	1	25.0	25.0	150	10.5	2	42.5	39.0	313		1430 hrs.				10.5	10	54.3	48.7	
	1430 hrs.					MUSSOORIE					1430 hrs.				10.5	8	77.8	73.0	257	12.0	7	65.0	56.8	
10.5	6	29.2	27.1	240		1430 hrs.				10.5	5	49.8	48.0	281	12.0	1	123.0	123.0	235	14.1	1	61.0	61.0	
12.0	4	43.3	43.0	221	10.5	3	61.3	51.9	295		PORT BLAIR					TIRUCHIRAPALLI					VISAKHAPATN			
14.1	2	42.5	41.5	216	12.0	1	91.0	91.0	242		0730 hrs.					0730 hrs.					1430 hrs.			
16.2	2	22.0	22.1	242	14.1	1	88.0	88.0	245	10.5	1	17.0	17.0	085	10.5	3	15.7	7.3	240	10.5	22	45.3	42.7	
	2030 hrs.*					NAGPUR					1430 hrs.				12.0	2	14.5	12.7	236	12.0	12	49.4	45.8	
10.5	19	25.8	21.9	230		0830 hrs.*					1430 hrs.				14.1	1	35.0	35.0	210	14.1	3	52.0	50.8	
12.0	14	27.8	22.9	217	10.5	21	59.4	50.8	268	10.5	1	21.0	21.0	160		TRIVANDRUM					0830 hrs.*			
14.1	6	25.7	19.8	234	12.0	16	56.6	50.3	261	12.0	1	15.0	15.0	180	10.5	10	12.6	10.7	209	12.0	8	14.4	9.0	240
16.2	2	29.0	28.3	232	14.1	10	62.3	53.9	258		2030 hrs.*				14.1	7	20.4	16.0	247	14.1	7	20.4	16.0	247
18.0	1	14.0	14.0	185	16.2	4	38.3	31.7	270	10.5	8	19.5	46.6	158	16.2	2	21.0	20.7	275	16.2	2	21.0	20.7	275
	MANGALORE					1430 hrs.					1430 hrs.				18.0	1	22.0	22.0	331	20.0	1	24.0	24.0	060
	0730 hrs.				10.5	16	61.7	53.7	278	14.1	3	30.7	27.3	171	20.0	1	24.0	24.0	060		1430 hrs.			
10.5	2	12.0	9.7	255	12.0	7	61.4	55.4	265	16.2	1	41.0	41.0	170		RAIPUR				10.5	8	18.9	18.1	227
12.0	1	6.0	6.0	045		2030 hrs.*					1430 hrs.				12.0	6	14.0	10.0	235	12.0	6	14.0	10.0	235
	1430 hrs.				10.5	16	60.1	51.2	259	10.5	4	69.7	59.0	256	14.1	5	15.4	12.4	237	14.1	5	15.4	12.4	237
10.5	19	17.6	13.0	245	12.0	11	60.2	54.3	256	12.0	1	58.0	58.0	210	16.2	2	8.0	7.3	080	16.2	2	8.0	7.3	080
12.0	12	22.4	14.7	242	14.1	2	79.0	71.8	260		SANTACRUZ				18.0	1	17.0	17.0	100		2030 hrs.*			
14.1	9	14.4	10.1	238		NEW DELHI					0830 hrs.*				10.5	16	18.6	11.3	210	10.5	16	18.6	11.3	210
16.2	6	16.3	12.5	084		0830 hrs.*				10.5	24	52.9	45.8	275	12.0	14	19.6	13.4	208	12.0	14	19.6	13.4	208
18.0	3	12.3	4.5	106	10.5	24	76.0	70.7	272	12.0	20	59.4	49.6	277	14.1	9	21.0	11.7	186	14.1	9	21.0	11.7	186
20.0	6	17.7	15.1	100	12.0	19	85.6	80.6	269	14.1	14	60.0	53.5	271	16.2	3	19.0	10.1	202	16.2	3	19.0	10.1	202
					14.1	6	76.7	73.4	266	16.2	7	57.7	53.3	276	18.0	1	20.0	20.0	180	18.0	1	20.0	20.0	180
										18.0	2	63.5	55.4	267	20.0	1	17.0	17.0	085	20.0	1	17.0	17.0	085

RADIOSONDE DATA

Journal of the Indian Meteorological Society December 1956

During the month, observations of upper air temperature, pressure and humidity were made at 12 stations in India as given in the list below. For a detailed description of the instruments used a reference may be made to the I.M.D. Scientific Notes Nos. 112 and 113 (Volume IX)

LIST OF RADIOSONDE STATIONS IN INDIA

Serial No.	Name of station	Type of instrument used	Date of starting	Hours of routine observations in GMT during the month	Remarks
1	Allahabad	Clock type	1st October, 1944	03 and 15	
2	Bombay	Clock type	7th September, 1954	03 and 15	
3	Calcutta	Clock type	13th December, 1946	03 and 15	Fan type used from 13th December, 1946 to 30th November, 1947.
4	Gauhati	Clock type	22nd July, 1955	03 and 15	
5	Jodhpur	Clock type	17th April, 1946	03 and 15	
6	Madras	Fan type	29th June, 1946	03 and 15	
7	Nagpur	Fan type	1st October, 1946	03 and 15	
8	New Delhi	Clock type	3rd December, 1943	03 and 15	
9	Port Blair	Fan type	4th December, 1949	15	
10	Trivandrum	Fan type	1st July, 1947	03 and 15	03 hrs. ascent started on 11-10-56.
11	Veraval	Fan type	3rd October, 1944	15	
12	Visakhapatnam	Fan type	8th December, 1946	03 and 15	03 hrs. ascent started on 17th Oct. 56.

RADIOSONDE DATA

TABLE VI.—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(A) From Ascents at 09 Hours G. M. T.

December 1950

Standard Pressure Surface mbs.	ALLAHABAD Surf. Pr. (1007 mb.)						BOMBAY (1014 mb.)						CALCUTTA (1017 mb.)					
	No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A			
			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	
Surface	81	98	288.5	293	285	284.7	81	9	293.4	297	290	291.0	28	6	292.8	297	290	
1000	29	154	..	..	..	..	31	132	..	..	..	..	27	150	..	..	..
900	29	1049	287.3	292	282	275.0	31	1050	293.6	296	290	285.1	27	1019	287.1	290	284	
850	29	1529	284.6	289	279	272.1	31	1542	290.6	295	287	282.1	27	1531	284.6	290	281	
800	29	2031	281.9	286	277	268.7	31	2057	287.4	291	283	278.9	27	2036	282.6	289	278	
700	29	3128	276.3	281	271	259.0	31	3174	281.4	285	275	269.7	27	3140	278.3	284	274	
600	29	4365	269.7	275	257	..	31	4432	274.3	278	261	260.0	27	4390	272.2	278	264	
500	27	5781	261.2	270	251	..	31	5877	265.8	271	260	..	26	5821	263.5	272	254	
400	25	7460	250.2	257	234	..	31	7579	254.1	261	246	..	24	7516	252.4	261	241	
300	24	9508	235.9	251	215	..	29	9666	240.6	253	228	..	19	9597	241.0	250	227	
250	24	10745	229.0	246	211	..	27	10952	233.7	248	221	..	16	10894	234.4	246	222	
200	21	12199	222.5	237	206	..	24	12460	225.4	243	215	..	14	12410	227.0	239	214	
175	20	13073	218.9	233	203	..	22	13313	222.0	239	210	..	11	13348	224.0	234	213	
150	15	14016	216.2	230	202	..	15	14317	217.7	234	203	..	5	14350	217.0	223	211	
125	14	15147	211.4	226	199	..	13	15426	210.8	231	198	..						
100	9	16594	209.6	226	200	..	6	16853	209.2	230	196	..						
80	8	17991	209.9	226	199	..						..

Surface	GAUHATI (1013 mb.)						JODHPUR (992 mb.)						MADRAS (1014 mb.)					
	No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A			
			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	
Surface	31	49	290.3	292	288	290.1	29	218	287.8	291	285	278.6	31	15	297.9	300	296	
1000	31	163	..	..	..	..	29	154	..	..	..	..	31	140	..	..	..
900	31	1053	285.1	287	281	283.0	29	1049	289.2	293	286	275.9	31	1055	291.3	294	288	
850	31	1530	282.5	287	279	279.8	29	1532	286.1	291	282	271.2	31	1543	288.7	293	286	
800	31	2031	279.8	283	277	276.0	29	2039	283.0	288	279	266.9	31	2057	286.8	290	284	
700	31	3118	274.0	280	267	267.9	28	3136	276.8	282	272	256.3	31	3175	283.0	287	279	
600	30	4344	268.5	274	263	..	28	4373	269.9	275	266	248.2	30	4443	276.6	281	271	
500	29	5762	261.4	267	251	..	28	5792	260.7	265	253	..	29	5930	268.3	273	263	
400	28	7435	250.6	258	240	..	27	7462	249.0	256	243	..	28	7622	256.4	265	251	
300	25	9490	236.6	245	225	..	26	9495	233.3	239	225	..	23	9738	242.6	251	236	
250	23	10752	230.8	239	222	..	24	10723	226.3	234	219	..	19	11017	234.3	249	228	
200	22	12246	225.0	231	217	..	20	12177	221.0	232	210	..	17	12504	222.1	225	216	
175	15	13123	222.1	230	207	..	20	13044	218.7	230	209	..	13	13375	215.4	220	207	
150	11	14160	218.6	229	212	..	19	14012	215.5	225	208	..	13	14348	210.5	218	205	
125	7	15297	214.1	221	207	..	14	15157	213.1	219	201	..	7	15483	205.2	213	197	
100	7	16688	213.6	219	206	..	12	16559	211.1	218	196	..	6	16903	207.1	219	194	
80						..	7	17904	212.3	218	207	..	6	18393	206.0	214	192	

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(A) From Ascents at 03 Hours G. M. T.

December 1956

Standard Pressure Surface mbs.	NAGPUR Surf. Pr. (981 mb.)						NEW DELHI (99½ mb.)						TRIVANDRUM (100½ mb.)					
	No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A			
			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew point
Surface	29	311	290.8	294	288	284.3	31	210	284.0	288	281	280.7	23	64	300.4	302	299	293.3
1000	29	155	..	..	..	..	29	159	..	..	..	..	23	115	..	..	..	..
900	29	1059	290.8	294	289	280.1	29	1046	286.5	290	283	274.7	23	1038	293.7	297	291	285.7
850	29	1545	287.9	291	285	274.0	29	1524	284.0	288	282	270.9	23	1530	291.1	294	289	281.7
800	29	2057	285.6	290	282	268.2	29	2027	281.2	284	278	268.1	23	2047	288.6	292	286	278.3
700	28	3165	280.3	284	276	261.1	29	3116	274.1	278	270	260.5	23	3170	283.4	287	281	270.4
600	28	4417	273.6	277	269	251.3	29	4340	267.0	273	263	..	23	4435	276.3	281	270	262.4
500	27	5857	265.2	271	261	..	28	5746	258.0	264	249	..	23	5891	268.3	274	263	..
400	25	7558	253.6	259	243	..	27	7403	247.8	252	244	..	22	7614	257.4	267	251	..
300	25	9643	239.8	251	234	..	25	9430	234.0	240	227	..	20	9724	213.1	249	235	..
250	22	10908	231.5	242	226	..	24	10660	226.0	233	219	..	18	11004	233.1	245	225	..
200	19	12398	223.4	237	214	..	21	12120	220.9	233	213	..	16	12503	222.3	229	211	..
175	15	13266	219.7	225	215	..	21	13030	219.9	234	209	..	14	13329	215.5	223	209	..
150	13	14241	213.4	218	207	..	18	13981	218.8	228	213	..	12	14313	209.7	218	201	..
125	12	15357	208.2	217	194	..	11	15158	216.3	226	209	..	7	15469	205.9	211	197	..
100	10	16737	204.3	211	185	..	10	16554	214.0	224	205	..	6	16778	200.8	205	192	..
80	5	18096	205.6	209	201	..	8	17925	212.7	218	211	..	5	18067	197.4	204	189	..

VISAKHAPATNAM
(1011 mb.)

Surface	24	48	297.8	299	297	292.3
1000	24	146	..	..	..	..
900	24	1057	291.3	294	289	283.3
850	24	1546	288.8	291	286	279.5
800	24	2060	286.8	291	283	275.5
700	24	3175	281.7	285	279	270.1
600	24	4135	275.8	279	273	266.3
500	24	5890	267.3	271	263	..
400	24	7600	255.8	263	249	..
300	19	9394	241.8	252	237	..
250	15	10935	232.8	241	229	..
200	13	12158	224.2	231	219	..
175	11	13318	219.6	224	210	..
150	11	14307	213.7	221	209	..
125	5	15400	210.0	218	207	..

RADIOSONDE DATA

TABLE VI—MEAN DYNAMIC HEIGHT, TEMPERATURE AND DEW POINT AT STANDARD PRESSURE SURFACES

(B) From Ascents at 15 Hours G. M. T.

December 1956

Standard Pressure Surface mbs.	NAGPUR Surf. Pr. (980 mb.)						NEW DELHI (993 mb.)						PORT BLAIR (1003 mb.)					
	No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A			
			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point
Surface	25	311	293.8	297	290	284.8	31	210	286.1	293	283	282.3	25	79	298.9	300	298	296.1
1000	25	133	..	..	..	..	29	149	..	..	..	..	24	107	..	..	..	..
900	25	1045	292.7	298	290	279.3	29	1044	287.7	291	284	275.0	24	1025	292.4	295	290	289.6
850	25	1532	289.4	298	286	275.0	29	1524	284.7	289	280	271.7	24	1515	289.6	294	287	286.0
800	25	2045	285.6	290	283	271.5	29	2029	281.6	285	278	268.9	24	2030	287.4	291	284	281.2
700	25	3155	280.0	283	274	262.9	29	3119	274.6	278	269	259.7	24	3150	282.8	288	278	269.3
600	25	4404	272.9	277	267	256.8	29	4345	267.2	271	262	..	23	4414	275.5	279	273	264.8
500	25	5840	264.0	269	260	..	28	5751	258.4	262	253	..	21	5869	267.4	273	264	..
400	25	7532	252.9	261	247	..	27	7413	248.1	256	243	..	19	7587	257.1	261	253	..
300	22	9606	238.5	245	233	..	24	9449	234.3	242	225	..	12	9700	242.5	247	235	..
250	21	10816	230.0	240	223	..	24	10680	226.5	233	215	..	8	10954	231.8	235	227	..
200	18	12348	221.8	228	213	..	20	12146	222.1	229	211	..	5	12450	222.6	226	217	..
175	12	13287	218.3	227	213	..	17	12989	219.9	228	211	..						
150	9	14239	213.5	222	206	..	13	14001	219.3	225	209	..						
125	6	15385	211.0	218	203	..	6	15186	216.5	221	211	..						
100	5	16701	205.8	210	203	..	5	16585	212.6	218	208	..						
80																		

Standard Pressure Surface mbs.	TRIVANDRUM (1004 mb.)						VERAVAL (1014 mb.)						VISAKHAPATNAM (1010 mb.)					
	No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A				No. of Obs.	Ht. gpm.	Temperature °A			
			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point			Mean	Max.	Min.	Dew Point
Surface	25	64	299.7	301	299	294.4	28	8	296.5	299	294	293.5	27	48	297.6	299	297	293.4
1000	25	101	..	..	..	..	28	132	..	..	..	..	27	134	..	..	..	..
900	25	1022	293.3	295	290	287.4	28	1050	293.0	297	289	283.4	27	1047	291.2	295	289	282.7
850	25	1513	290.2	293	287	284.0	28	1540	289.4	294	285	280.0	27	1534	288.4	293	283	279.6
800	25	2030	287.6	291	285	279.2	28	2054	287.1	293	283	275.7	27	2046	286.0	291	281	276.7
700	25	3148	282.2	289	278	269.1	28	3169	280.9	285	273	269.7	27	3158	281.2	286	277	269.3
600	25	4410	275.4	281	271	262.0	28	4425	273.9	279	268	263.8	27	4418	275.2	281	272	260.0
500	25	5861	267.6	273	265	..	26	5863	264.5	269	259	..	27	5866	266.3	272	263	..
400	23	7579	256.7	260	251	..	15	7563	253.5	257	248	..	25	7575	255.3	259	252	..
300	21	9691	241.0	246	236	..	18	9651	238.9	245	233	..	21	9674	240.9	251	231	..
250	21	10944	232.0	237	227	..	10	10914	232.7	239	227	..	18	10935	231.0	237	227	..
200	18	12434	220.6	227	215	..	6	12365	221.8	224	220	..	15	12414	220.9	226	217	..
175	14	13221	214.3	221	206	..							9	13280	215.4	221	212	..
150	12	14193	206.9	215	197	..							9	14252	209.0	214	205	..
125	5	15436	203.6	207	201	..												
100																		
80																		

Note.—Number of observations refer to those of dynamic height.

Means are not worked out for temperature and dew point for the 1000 mb. surface and for dew point for standard pressure surfaces with temperature less than 273°A.

Means are not worked out for less than five observations at standard pressure surfaces.

Errata to Monthly Weather Report for December, 1956

Page No.	Station	Hour	Column	For	Read
<u>Table II</u>					
552	Calcutta	-	2	31.5	81.5
553	Meerut	-	2	2.9	72.9
554	Mandi	-	10	0.23	0.27
"	Barmer	-	16	+ 0.3	- 0.3
"	Barmer	-	27	1	0
"	Jaipur	-	3	+0.8	-0.8
"	Kotah	-	7	- 2.2	+ 2.2
"	Bhopal	-	19	- 0.3	+ 0.3
	(Bairagarh)				
"	Umaria	-	19	+ 0.5	- 0.5
"	Footnote	-	-	(I)-Mean of 19 days	(1) - Mean of 19 days
555	Baroda	-	3	+ 0.2	- 0.2
"	Bhavnagar	-	12	+0.06	-0.06
"	Jeur	-	13	0	0.01
556	Ramagundam	-	10	Blank	0
"	Hyderabad (Begum- pet Aerodrome)	-	24	0	3
"	Hakimpet	-	24	0	3
557	Mahableswar	-	4	8	80
"	Nandi Hills	-	4	7	73
"	Hambantota	-	9	9 days	4 days
"	Mannar	-	9	4 days	9 days

Table III

562	Dibrugarh	0830	5	1007.5	1007.0
"	Dibrugarh (Mohanbari Aerodrome)	1730	11	5	85
"	Jorhat	1130	4	1011.7	1017.4
"	Tangla	0830	1	*	Delete
"	Tangla	1730	1	*	Delete
"	Gauhati (Kaiku- chi Aerodrome)	1130	11	5	65
563	Haflong	0830	19	Blank	4
"	Barrackpore	1130	15	.9	3.9
"	Midnapore	0830	12	Blank	-10
"	Krishnagar	0830	6	+ 3.1	+ 0.4
564	Cuttack	0830	15	Blank	0
"	Cuttack	1730	15	..	0
"	Sambalpur	0830	4	1019.7	1018.7
565	Ranchi	0830	12	..	0
"	Patna (Aerodrome)	0830	7	61.1	61.0
566	Varanasi (Banaras)	1730	8	53.0	63.0
"	Allahabad (Bamrauli)	1130	8	60.	60.7
"	Orai	1730	5	999.	999.8
"	Jhansi	1730	5	986.	986.1
"	Bareilly (P.B.O.)	0230	5	986.3	996.3
"	Denra Dun	1130	7	63.8	63.6

Page No.	Station	Hour	Column	For	Read				
566	Dehra Dun	1130	11	83	48				
567	New Delhi	0230	28	Blank	0				
"	New Delhi	1730	10	10.0	10.9				
"	Hissar	0530	10	9.4	9.2				
"	Hissar	0830	10	9.4	9.2				
"	Patiala	0830	18	26	20				
"	Amritsar	0830	9	4.3	43.3				
"	Srinagar	1130	11	6	65				
568	Erinpura (Jawai Dam)	1730	7	57.9	75.9				
"	Gwalior (P.B.O.)	0530	28	Blank	0				
569	Guna	1130	10	10.0	11.0				
"	Bhopal (Bairagarh)	0530	10	01.3	10.3				
570	Jagdalpur (P.B.O.)	0530	7	51.1	55.1				
"	Khandwa	1730	13	Blank	1.9				
571	Dohad	1730	17	6	0				
"	Baroda (Aerodrome)	1730	28	1	0				
"	Bhuj (Aerodrome)	0830	11	50	80				
"	Bhuj (Aerodrome)	1130	15	6.9(d)	6.9				
"	Bhuj (Aerodrome)	1730	15	6.9	6.9(d)				
"	Porbander	0830	4	1016.3	1016.6				
"	Jamnagar	0530	6	+ 0.4	..				
"	Jamnagar	0830	6	..	+ 0.4				
"	Jamnagar	0830	14	..	+ 0.6				
"	Jamnagar	1130	14	+ 0.6	..				
"	Rajkot (Aerodrome)	0830	6	..	+ 0.8				
"	Rajkot (Aerodrome)	1130	6	+ 0.8	..				
"	Mahuva	0830	4	1013.3	1016.3				
"	Bhavnagar (Aerodrome)	1130	4	1017.4	1017.2				
"	Dahanu	0830	9	56.	56.8				
"	Dahanu	1730	2 to 28	given below					
1730	45	1012.7	1012.2	- 78.1	71.5	68.2	23.4	73	-
0.5	-	11.2	0	7	24	27	1	0	0
0	0	3	0	0					
572	Bombay (Colaba)	0830	2 to 28	given below					
0830	35	1015.5	1014.2	+0.6	71.3	66.0	62.5	19.4	74 +4
1.0	-0.4	4.5	0	0	31	6	15	9	1 0
0	0	0	0	0					
"	Bombay (Colaba)	1130	2 to 28	given below					
1130	"	1015.6	1014.4	- 81.4	69.2	61.6	18.9	52	-
0.8	-	4.3	0	0	31	1	12	15	2 0
0	0	1	0	0					
572	Bombay (Colaba)	1730	24	5					0
"	Bombay (Santa Cruz Aerodrome)	0530	24	3					0
"	Harnai	0830	5	1102.3					1012.3
"	Vengurla	0830	8	66.1					65.1
"	Malegaon	1730	28	Blank					0

Page No.	Station	Hour	Column	For	Read
572	Miraj	0830	13	1.	1.9
"	Miraj	0830	20	Blank	5
573	Gadag (P.B.O.)	0530	17	1	0
"	Gadag (P.B.O.)	1730	17	0	1
"	Nizamabad	0830	6	0.7	+ 0.7
"	Hanamkonda	0830	14	+ 0.6	- 0.6
"	Nellore	1130	27	Blank	0
"	Nellore	1130	28	Blank	0
574	Gannavaram	0530	27	2	20
"	Masulipatam	0830	6	- 0.5	+ 0.5
"	Masulipatam	2330	11	8	87
"	Kakinada	1730	10	22.7	21.7
"	Visakhapatnam	0830	9	3.6	63.6
"	Visakhapatnam	0830	14	+ 1.7	- 1.7
"	Calingapatam	1730	24	1	0
"	Rentachintala	0830	24	1	0
"	Cuddapah	0830	14	+ 0.2	- 0.2
"	Kurnool	0830	14	+ 0.8	- 0.8
"	Kurnool	0830	24	3	0
"	Anantapur	0530	24	0	3
"	Anantapur	2330	7	1.0	71.0
"	Anantapur	2330	9	61.0	61.7
"	Nagapattinam	0830	6	- 1.2	+ 1.2
"	Tiruchirapalli	0530	10	23.3	22.3
"	Tiruchirapalli	0830	14	+ 0.8	- 0.8
575	Coimbatore (Peelamedu Aerodrome)	0530	15	2.	2.8
"	Kallakurichi	1730	15	10.0	1.0
576	Alleppey	0830	5	1013.8	1012.8
"	Kohima	1730	4	1454.9	1545.9
"	Simla	0830	13	4	4.6
"	Abu	0830	7	56.6	55.6
"	Abu	0830	9	39.2	36.2
"	Abu	1730	9	36.7 ^(b)	39.7 ^(b)
"	Mercara	0830	12	..	0
577	Mercara	1730	22	1	0
"	Ootacamund	0830	10	89.2	8.2
"	Colombo	0830	12	..	- 3 ^(a)
"	Hambantota	1730	15	16.7 ^(a)	16.7 ^(a)
"	Mannar	0830	15	8.0 ^(a)	8.0

Table III (A)

Page No.	Station	Month	Column	For	Read
583	Kondul	March	R	19 6	1956
"	Dibrugarh	February	X	19 2	1942
"	Dhubri	July	R	11.52	11.25
"	Tura	July	R	9.012	9.02
"	Tura	July	R	19.51	1951
"	Haflong	April	N	1956	1955
"	Haflong	May	R	1955	1956

Page No.	Station	Month	Column	For	Read
583	Haflong	June	X	1956	1955
584	Maya Bandar	October	N	63	68
"	Dibrugarh	October	N	19 3	1943
"	Golaghat	November	X	19 6	1956
"	Golaghat	December	R	19 6	1956
"	Tezpur	November	X	19 2	1952
"	Silchar	September	X	1897	1887
"	Silchar	October	R	1914	1912
585	Malda	April	X	112	110
"	Baripada	June	X	..	1956
"	Baripada	June	N	1956	..
"	Baripada	July	X	..	1956
"	Angul	January	R	1692	1.32
586	Calcutta	November	N	5	51
"	Saugor Island	October	X	19 8	1918
"	Saugor Island	October	R	19 3	1933
"	Saugor Island	-	Temp.	188	1881
"	Midnapore	November	X	19 7	1937
"	Midnapore	December	X	195	1954
"	Contai	November	X	19 2	1952
"	Burdwan	November	R	19 6	1916
"	Puri	November	R	19 5	1915
"	Bhubaneshwar	November	X	19 2	1952
"	Bhubaneshwar	November	N	19 3	1953
"	Angul	-	Temp.	19 6	1906
587	Jharsuguda	March	X	1956	1955
"	Jamshedpur (P.B.O.)	March	R	1956	1951
"	Ranchi	February	R	19 3	1913
"	Muzaffarpur	February	R	1935	0.35
"	Patna	May	X	1911	1941
"	Dumka	June	N	63	68
"	Gonda	July	R	8	8.48
588	Sambalpur	December	X	99	90
"	Jamshedpur	August	N	73	74
"	Jamshedpur	November	X	51	1951
590	Meerut	August	X	195	1954
"	Meerut	October	R	44	4.45
"	New Delhi	October	R	0.80	6.80
591	Mandi	January	X	19 6	1956
"	Sri Ganganagar	June	X	112	122
595	Raipur	July	X	103	102
"	Baroda	April	R	t	0
596	Raigarh	-	R'fall	1959	1950
597	Broach	March	R	195	1954
"	Broach	June	R	430	4.30
"	Dwarka	July	R	0.78	10.78
"	Jamnagar	July	R	3.19	13.19
"	Alibag	January	R	19 8	1948
"	Devgad	March	X	19 8	1948
"	Devgad	July	X	19 2	1952
"	Devgad	July	R	19 8	1948
"	Honavar	July	N	19.56	1956

Page No.	Station	Month	Column	For	Read
598	Bhavnagar	August	R	19 6	1946
"	Bhavnagar	September	R	1547	1947
"	Bhavnagar	November	X	19 8	1948
"	Bhavnagar	December	X	19 1	1941
599	Aurangabad (Chikalhana Aerodrome)	May	X	954	1954
600	Sholapur	August	R	1 40	1940
"	Miraj	August	R	5.44	5.94
"	Miraj		Temp.	193	1931
"	Miraj		R' fall	193	1931
"	Ramagundam	December	N	1951	51
601	Kakinada	June	R	1974	19.74
"	Arogyavaram	May	N	19 6	1946
"	Mathurai	June	N	1987	1897
"	Salem	March	N	38	58
"	Salem	May	R	4.8	4.08
602	Cuddapah	November	N	1930	1939
"	Anantapur	October	N	1050	1950
"	Anantapur	November	X	1051	1951
"	Anantapur	November	N	1050	1950
603	Vellore	March	R	.96	1.96
"	Madras	June	X	19 8	1948
"	Kozhikode	May	R	1057	10.57
"	Kozhikode	June	R	19 1	1941
"	Kohima	February	R	0. 8	0.58
"	Mawsynram	April	R	2.46	12.46
605	Kodaikanal	January	R	19 3	1943
606	Darjiling (Raj Bhawan)	November	N	1915	1951
607	Panchet Hills	April	N	0.64	64
"	Baramul	April	R	1555	1955
"	Hirakud	February	N	1946	1956
608	Baramul	November	N	1956	1955

Table IV

Page No.	Station	Ht. in Km.	Hour	Column	For	Read
612	Anantapur	0.9	0730	D	980	098
"	Bagdogra	3.0	0130	D	287	282
"	Anantapur	5.4	0730	V	12.3	12.2
"	Bairagarh	6.0	1430	v	53.3	35.3
613	Bamrauli	5.4	1430	V	3.95	39.5
"	Bareilly	1.5	1430	D	3 3	303
614	Bhagalpur	0.15	1430	D	210	310
"	Bhubaneshwar	9.0	1430	D	179	279
"	Bikaner	1.5	0130	v	5.6	4.6
"	Bikaner	2.1	1430	n	80	30
615	Darjeeling	6.0	0730	V	32.4	32.9
"	Darjeeling	9.0	1430	V	15.0	51.0
"	Dum Dum	Surface	2030	v	5.0	0.5
"	Dum Dum	1.5	0830	D	215	315

Page No.	Station	Ht. in km.	Hour	Column	For	Read
616	Gorakhpur	6.0	0730	D	173	273
617	Jagdapur	3.0	1430	D	253	353
618	Jamshedpur	5.4	1430	V	3.6	37.6
619	Madras	9.0	0830	D	225	255
"	Masulipatnam	4.5	0130	D	38	348
620	Mohanbari	0.9	1430	D	170	070
622	Tezpur	4.5	1430	V	3.58	35.8
"	Tezpur	5.4	1430	V	4.35	43.5
"	Santacruz	6.0	0830	V	2.50	25.0
623	Visakhapatnam	0.15	0730	v	3.9	3.8
"	Visakhapatnam	0.3	0730	v	5.8	5.9
"	Visakhapatnam	0.6	0730	n	21	31
"	Veraval	0.9	0130	v	9.4	3.4
626	Port Blair	10.5	2030	v	46.6	4.6

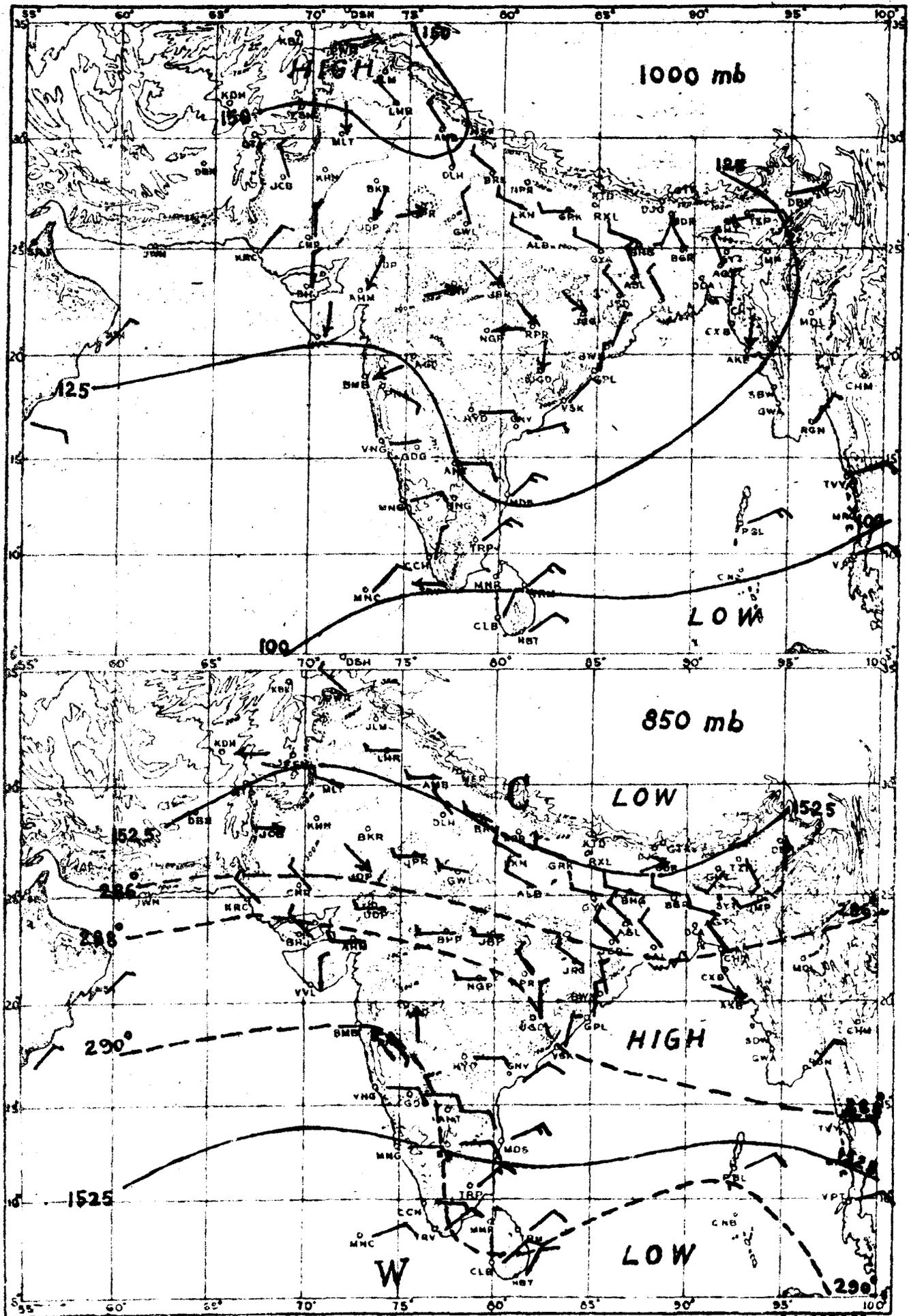
VAZ/-

MONTHLY MEAN CONSTANT PRESSURE CHARTS

DECEMBER 1956

I. Mel. D.

Plate I



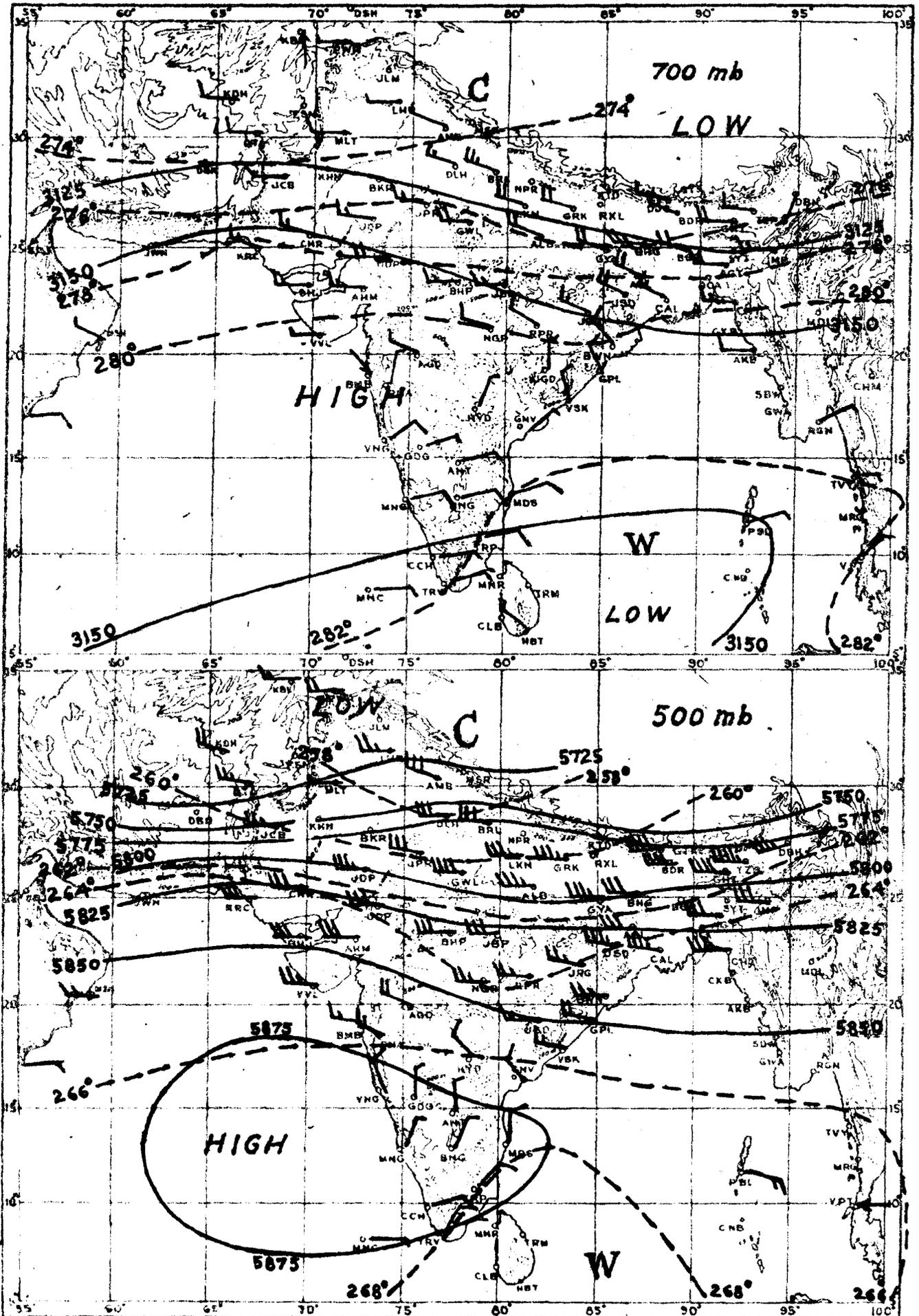
RESULTANT WIND — 5 Knots, — 10 Knots, — 50 Knots.

--- Isotherms in degrees absolute. — Contours in geopotential metres.

MONTHLY MEAN CONSTANT PRESSURE CHARTS DECEMBER 1956

I.Mel.D.

Plate II



RESULTANT WIND — 5 Knots, — 10 Knots, — 50 Knots.

--- Isotherms in degrees absolute.

— Contours in geopotential metres